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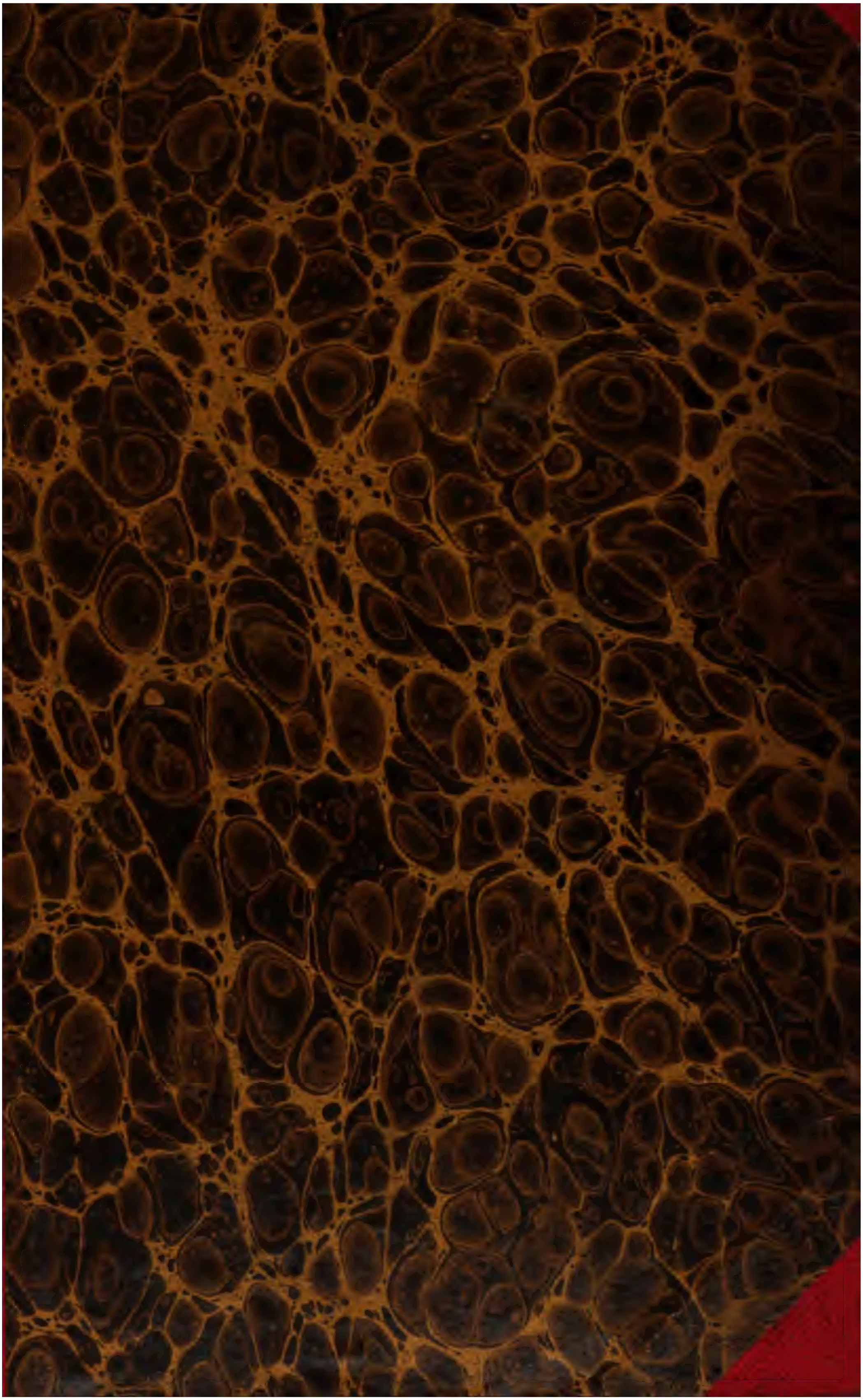

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FOR SIX MONTHS.

EDITED BY

D. G. BRINTON, M. D.

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PREFACE.

The present number of the HALF-YEARLY COMPENDIUM will, it is hoped by the editor, be found fully equal in interest to any that have preceded it. Every department of theoretical and practical medicine will be found fully represented, and the latest sources of both European and American Scientific Literature have been laid under contribution.

The increasing demand for this periodical proves that it unlike some other abstracts, is calculated to fill successfully, the place of a semi-annual resumé of medical progress. The editor hopes that this favor will be continuous in the future, as in the past.

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ANATOMY, PHYSIOLOGY AND PATHOLOGY.

1. ANATOMY.

Chemical Constituents of the Brain.

The London *Medical Record*, October 7, 1874, gives a review of the researches of M. Gobley on this point:—

The conclusions at which M. Gobley arrives (*Journal de Pharmacie et de Chimie*, September,) are as follows:

1. The cerebral substance of man contains about eighty per cent. of water.

2. It contains two albuminoid matters; the one soluble in water, and not differing from albumen; the other insoluble, and for which he has proposed the name of *cephaline*.

3. The fatty matter of the brain is formed principally of cholesterine, of lecithine, and of cerebrine; and it contains, besides, traces of oleine and of margarine.

4. The brain contains the ordinary salts of the system, and extractive matters, some of which are soluble in water and in alcohol, others soluble in water and insoluble in alcohol.

5. During putrefaction, the cerebral pulp furnishes acid products, among which are found oleic, margaric, phosphoglyceric, and phosphoric acids.

6. The composition of the brain may be considered as represented on an average, for 100 parts, by:—

Water	80.00
Albumen	1.00
Cephaline	7.00
Cholesterine	1.00
Cerebrine	3.00
Lecithine	5.50
Oleine and margarine	“
Inosite, creatine, xanthine, etc	“
Aqueous and alcoholic extractive matters	1.50
Chlorides of potassium and of sodium, phosphates of potash, of lime, and of magnesia, etc	1.00
	100.00

Structure of the Thyroid Gland.

It is stated in the *Lancet* that in a pamphlet recently published by M. S. A. Boëchat some novel views of the structure of the thyroid are advanced. M. Boëchat hardens the gland in picric acid, then transfers it for a few days to a solution of gum, and finally immerses it in alcohol. In opposition to previous writers, he maintains that the alveoli intercommunicate freely, and that they are not round, but irregularly-shaped cavities. The walls of the vesicles are formed by a single layer of epithelial cells, which separate the vesicles from the lymphatic sinuses, that are here very large and numerous. The individual epithelial cells are broader than high and are not, therefore, as Verson described them, columnar in form. In childhood the vesicles contain a viscous fluid, with a variable number of granulations. In later life they are filled with colloid substance. The latter stains deeply with anilin red and carmine. Boëchat agrees with Virchow in believing that the colloid substance is not produced at the cost of the epithelial cells, since these can be often found forming a perfect layer in alveoli filled with the colloid substance. The lymphatic sinuses constitute a wide cavernous plexus, distributed through the connective-tissue stroma of the gland.

Instance of Supernumerary Phalanx.

The instance cited below is given by Dr. A. B. Nelson, of Danville, Ky., in the *American Medical Weekly,* September 26, 1874.

It is in the person of Susan Parks, aged three years, daughter of John and Priscilla Parks, colored, at this time in the service of Mr. W. J. Moore, of this place. The parents are specimens of perfect normal development, and as far as I have been able to trace their relationship, neither the anatomical peculiarity I am about to describe, nor any other noticeable one, has occurred in any relative of the subject of this singular lusus naturæ. I might mention here, though I see no possible connection between antecedent and consequent, that the mother attributes it to a fright received from a snake while the child was in utero.

The anomaly of which I speak is the existence of apparently three phalanges in the thumb of each hand. The joints are perfect, and the thumb exactly resembles a finger. The supernumerary phalanx is nearly the size of the last one of the forefinger; but the second phalanx appears somewhat shorter than the corresponding one of the index finger. There are three creases in the skin on the palmer surface of the thumb, just as in the fingers. When the thumb and forefinger are completely extended side by side, the end of the thumb reaches nearly to the last joint of the finger.

Dr. Joseph Leidy, Professor of Anatomy of Pennsylvania, to whom I reported the case, writes that he has seen two specimens of this anomaly in the living subject, but that he has never yet seen it in the skeleton hand. He is of the opinion that the existence of the third phalanx is only apparent; that it is due to an excessive development or prolongation of the trapezium.

An interesting example of the tendency of such supernumerary deformities to become hereditary, was reported to the St. Louis Medical Society and published in the St. Louis *Medical and Surgical Journal,* August, 1874.

Dr. Borck exhibited a specimen of bone taken from a supernumerary little finger on the left hand of a child delivered by Dr. Newman. The child also had a supernumerary great toe on its left foot. The child's father had a supernumerary little finger on each hand. Child's mother had two great toes on the same foot. Child's brother had two great toes on the same foot. The child's maternal grandfather had a supernumerary great toe on each foot and a supernumerary little finger on his right hand. Dr. Borck advised the removal of the toe having the smaller articular surface, with the first metatarsal bone.

On Accessory Lobes to the Lungs.

In the *Transactions of the Royal Irish Academy,* quoted in the London *Medical Record,* September 9, 1874, Dr. Collins describes the occurrence of an accessory pulmonary lobe in a male, about fifty years old, and reviews the literature of the subject. This structure, of which a figure is given, occupied the angle between the upper portion of the right lung and the posterior part of the root of the same. It was pyriform in shape, had a broad peduncle, and lay upon the bodies of the five upper dorsal vertebræ in an accessory pleural pouch, which communicated with the general pleural cavity only around the peduncle. The trachea was completely separated from the spinal column by the pouch; and the azygos vein, at the head of the fifth rib, after receiving the superior intercostal tributary, instead of arching over the bronchus behind the pleura, entered the margin of the pleural fold. This latter, moreover, covered in the accessory lobe and isolated it completely, save at the peduncle, from the upper portion of the lung.

The earliest recorded abnormality of a similar nature was that laid by Wrisberg, before the Royal Society of Göttingen in 1777; and since then Rokitansky, Bouchaud, Chiene, Cleland, and Wenzel Gruber have directed attention to the same subject. Seven cases in all have been described, Wrisberg's being the only one in which the accessory lobe was on the left side.

Dr. Collins feels inclined to give assent to Dr. Cleland's theory, that early in fœtal life, from such cause as a slight adhesion of the lung to the wall of the thorax, the azygos vein, when drawn downwards by the descent of the heart so as to be made to run at a right angle to its originally transverse direction, dragged down and became enwrapped in a fold of pleura, thus deeply notching the lung instead of slipping behind both structures.

As regards certain other accessory lobes described by M. Pozzi and Professor Rektonzik, probably homologous with the "lobus impar" which occurs in lower mammals from the quadrumana downwards, Dr. Collins would consider such "as merely examples of that redundant lobulation not unfrequently seen in other viscera and as not meriting the title or consideration of special accessory lobes."

The Conglomerate Glands in Man.

HANS HEYNOLD, a student of medicine in Leipzig, gives the results of his examinations of the various conglomerate glands in man (*Archiv für Pathologische Anatomie und Physiologie*), quoted in the London *Medical Record*, Oct. 21, 1874. After distinguishing the efferent duct from the coil itself, in common with other authors, he quotes Kölliker, to the effect that the commencement of the former is invariably narrower than the lumen in the coil itself, and continues so to its entrance into the Malpighian layer, where it dilates to about double the size, and, retaining this breadth, it traverses the epidermis. In the corium the sweat-glands always have a distinct cavity, and an external investment of connective tissue, with elongated nuclei, without smooth muscular fibres, and an epithelium of at least two layers of polygonal nucleated cells without pigment-granules, etc. After quoting the descriptions of the glands by Henle, Biesiadecki, Frey, Schrön, and Aufhammer, Heynold describes his own experiments. In order to examine the condition of the excretory duct, he used pieces of skin hardened in either two per cent. of bichromate of ammonia or in Müller's solution and afterwards in alcohol, and partly in one-half per cent. of peroxide of osmium. The latter liquid was allowed to act for twenty-four to thirty-six hours, after which the pieces were placed in absolute alcohol. The following are the results of his investigations:—

1. All secreting canals of the conglomerate glands are more or less provided with muscles.
2. All secreting canals possess (towards the lumen) a sharply demarcated cylinder-epithelium without cuticle.

3. All excretory ducts are devoid of smooth muscular fibres, and are invested with a cuboid epithelium of several strata, the innermost of which has a distinct cuticle.

As regards the glands of the axilla, the author arrived at the following results:—

1. There exist in the axilla two different kinds of glands (axillary glands and sweat-glands).
2. The axillary glands are very large, and show a very strongly developed muscularity.
3. The epithelium of the axillary glands consists of one layer, is cuboid, shows a very broad cuticle, and is colored brown by osmic acid.
4. The excretory ducts of the axillary glands have an epithelium of sometimes one or more layers, but the innermost stratum always possesses a cuticle. In the first case they sometimes possess muscles and are very wide; in the second case they are mostly narrow and without muscles.

Anatomy of the Testis.

We learn from the *Lancet*, October 10, that the anatomy of the testis has recently undergone careful re-examination at the hands of Dr. VICTOR V. MIHALKOVICS, and the results of his researches appear in the last part of the "Arbeiten" or "work done" in the Physiology Laboratory of Ludwig, at Leipzic, in 1873. The conclusions at which Dr. Mihalkovics has arrived, which partly agree with, and in part differ from those of previous observers, are as follows:—In the first place, he finds, in opposition to the greater number of authors, as Müller, Krause, Beale, Sappey, Kölliker v. Luschka, and Lavalette St. George, that the tortuous terminal or peripheric portion of the tubuli seminiferi forms a plexus by the anastomoses of their numerous dichotomous divisions. The ultimate branches appear to be connected by loops. In man, the canals in the cortical layer present small bead-like projections of the wall, and never begin, as most of the above-named authors contend, by closed free extremities. In regard to the structure of the walls, he believes Henle is most exact in stating that it consists of a series of laminæ or membranes with flat nuclei. The size of the tubuli bears no relation to that of the testis, since in the guinea-pig it is 0.10; the cat, 0.11; in the cock, 0.12; mouse, 0.15; rabbit, 0.20; goat, 0.20; man, 0.21; dog, 0.25; bull, 0.26; and rat, which is the largest of all, 0.40 of a millimetre. Secondly, the straight portions of the tubes, or vasa recta, are not direct continuations of the tortuous portions, but are of very much smaller diameter, and are lined by a much shorter columnar epithelium. They run in the connective tissue of the corpus Highmorianum or in the lowest parts of the septa. Thirdly, the supporting cells, described by v. Merkel, and germ plexus are, he thinks, artificial products, which owe their existence to the coagulation of a tenacious albuminous substance occupying the interspaces between the seminal cells. Fourthly, certain interstitial cells are constituents of the testis, the analogues of which are discoverable in many other organs, as the supra-renal capsules, the sacral and carotidean glands, the corpus luteum, and pituitary body. Fifthly, the connective tissue of the testis consists of various-sized trabeculæ of connective tissue, which form a network and are covered by an endothelial layer of cells, which last is continued from them on to the seminal tubules and blood-vessels. Sixthly, the lymphatics commence in the interspaces of the fasciculi of connective tissue invested by endothelium, and partly in the lacunæ of the lamella of the walls of the seminal tubules. No true tubular lymphatics with defined walls exist in the testis at all. Lastly, the tubuli seminiferi are closely surrounded by a layer of capillary blood-vessels, intimately connected with the membrana propria.

The Minute Anatomy of Muscle.

This subject is discussed by Dr. G. THIN, in the Edinburgh *Medical Journal*, September, 1874. He says:—

The structure of a muscular fibre I believe to be as follows: A number of fibrillæ of uniform size, parallel to the long axis of the fibre, and embedded in an amorphous intermediary substance from which they chemically differ, form what may be called a primary bundle. In the frog there are from twelve to fifteen fibrillæ in such a bundle. The surfaces of this bundle are covered by long, narrow, nucleated unbranched cells.

A number of these primary bundles combine to form what I may call a secondary bundle. The surfaces of the secondary bundles are covered by rounded or oblong flat cells.

I have not observed any appearance indicating the existence of a membrane between the cells and the surface of the bundles, but infer it as probable, from analogy with what I have observed of flat cells in the connective tissues so-called.

The secondary bundles enclosed by the sarcolemma constitute essentially the fibre or primitive fasciculus of muscle.

Between the primary bundles, and embracing them, is a fine network, consisting of anastomosing branches from minute masses of protoplasm. These minute masses I believe to be of the nature of cells, and the network I should propose to call the elastic network of the primary bundles. Each mesh of the network encloses one primary bundle, and each bundle is therefore encircled by a succession of minute, straight fibres, which cross its surfaces transversely, and are parallel to each other. For a clear understanding of this accurate fitting of the network to the primary bundles, I would suggest a comparison of Fig. 2, Plate I., with the representation of frozen muscle in the plate illustrating Cohnheim's paper. Cohnheim's fields represent the surface of the primary bundles cut transversely.

Between the secondary bundles are cells with projecting processes, of an order larger than the elastic network of the primary bundles. That they anastomose with each other, and that the stronger fibres of the larger order of cells form a framework for the finer meshes, has been stated above.

The Histology of Connective Tissue.

The *Medical Times and Gazette*, September 19, 1874, remarks on this subject: The matrix of connective tissue has hitherto been generally regarded as possessed of so much consistence as to deserve to be called solid, in contradistinction to the diffluent plastic protoplasm of which wandering or pus-cells are composed. The familiar appearance of fibrillation which a portion of tendon, for example, presents under the microscope, gives the impression of a firm, inelastic, resisting structure; and even the cornea may be seen in an ordinary section to be composed of lamellæ, and may be teased into elemental fibrils. The passage of wandering (pus) cells through such a tissue, and the consequent formation in it of inflammatory foci, have been for several years easily accounted for by histologists on the supposition that the moving particles of protoplasm find their way along the lymphatic canals which exist in the matrix around the fixed or proper connective tissue-cells. Certain researches by Dr. G. Armauer Hansen, of Bergen, (*Virchow's Archiv.*, vol. lix.,) would appear to compel a considerable modification of these views. The particular form of connective tissue selected by Dr. Hansen for investigation is one whose structure he has already most carefully studied, both in the normal and inflamed state—namely, the cornea,—having added much to our previous knowledge of its lymphatic canals, the wandering cells, and the formation of pus within it (*Stricker's Jahrbuch*, 1871). He now urges that the exact correspondence of the lymphatic canals with the surface of the protoplasm within them—that is, the absence of any visible space between the matrix and the cells, and the occurrence of this correspondence, whether the cells be swollen or shrunken, or otherwise altered by inflammation,—is evidence of the great plasticity of the matrix. Further, he calls attention to the fact that the wandering (pus) cells in the inflamed cornea lie in spaces which are manifestly not in communication with the lymphatic canals surrounding the fixed cells. Evidently the pus-cells are embedded in the matrix and not in the lymphatic canals at all. That this is the case is rendered more probable by an observation of Dr. Hansen's, where he has watched a wandering cell in the living cornea as it worked its way slowly through the tissue, like a diatom through water, and left as little of a cleft behind it as does the latter. The route which such a cell pursues may have no relation whatever to the lymphatic canals. If these observations are correct, what can be the consistence of the matrix, which yields to a piece of moving protoplasm and closes behind it when it has passed? Surely so little that it would almost deserve the name of diffluent or semi-fluid.

Comparative Anatomy of the Arterial Cerebral Circulation.

Professor WALLEY read before the Obstetrical Society of Edinburgh, an article given in the Edinburgh *Medical Journal*, August, 1874. He said:—

From various causes, I have been led to inquire into the reason why the cow should be the subject of convulsive and apoplectic parturient affections, particularly apoplectic, while the mare, the sheep, the bitch, and in a great measure the sow, are free from them.

From remarks made at a meeting of this Society, now nearly two years ago, I became acquainted with the fact that puerperal apoplexy and convulsions occurred also in women. This induced me to endeavor to explain why this affection, as also that of apoplexy, was confined mainly to woman and the cow. And after much thought, it occurred to me that some anatomical resemblance might exist in the cerebral circulation, which would satisfactorily clear up the matter.

I at once injected the arteries of the head of a heifer which I opportunely obtained, and dissected it, and was rewarded by obtaining a good view of the circulation. This dissection I have much pleasure in exhibiting to the members of your Society to-night, and also of explaining it. I may remark, that previous to this dissection I had not formed a distinct idea of the circulation of the brain in the ox; since its accomplishment Chauveau's work has been translated, and I find that he coincides with my anatomical description of these vessels, substituting, however, *réseau admirable* for *rete mirabile.* The main points of difference in the circulation of the brain in the five animals I have mentioned, and the point of resemblance in the circulation of the brain of man, are in connexion with the distribution of the internal carotid and the formation of the basilar artery and the circle of Willis.

In the horse, the vertebral does not enter into the formation of the arterial circulation of the brain, the basilar artery being formed by the junction of the cerebro-spinal branches of the occipital inside the theca vertebralis, gaining this point by passing through the two foramina at the anterior part of the wing of the atlas, forming thereby a curve of some importance in checking the force of the arterial flow into the cranium. Furthermore, the very act of meeting its fellow as it does at a right angle, and then dividing into a backward (*middle spinal*) and a forward (*basilar*) branch, is a material check on the force with which the blood is propelled into the cranial cavity.

The internal carotid, the other main factor in the cranial circulation, performs several tortuosities before entering the foramen lacerum basis cranii. After penetrating the dura mater, it makes one curve forwards and one backwards, and gives off the posterior communicating artery to join the basilar, and finally divides into the anterior and middle cerebral, giving off also an anterior communicating branch which meets a similar one from the corresponding artery of the opposite side.

The ophthalmic artery anastomoses by its meningeal branches with the meningeal branches from the anterior communicating artery, but has little or no effect on the cerebral circulation.

The internal carotids, with the basilar posteriorly, form the circle of Willis, and at their internal flexure are united by a transverse branch behind the pituitary gland.

In the pig and dog, the basilar artery is formed by the cerebro-spinal branches of the occipital as in the horse. In the former animal, the internal carotid passes into the cranium as in the horse, but forms with the ophthalmic and spheno-spinous (*meningeal*) artery a *rete mirabile* as in ruminants. In the latter animal, the internal carotid passes into the cranium, forms a peculiar curve, which leaves the cavity through the oval foramen, and re-enters it again after receiving a branch from the external carotid, but does not form a true *rete mirabile.*

In the sheep and ox, the vertebral passes into the spinal canal, at the hole of conjugation between the dentata and third cervical vertebra, passes forwards and anastomoses with the occipital (which gains access to the cranium, not through the atlas, but through the condyloid foramen of the occiput), sending branches through the foramen in the wing of the atlas to supply the muscles of the occiput. These arteries then pass forward to form the basilar and a tolerably large posterior plexus, on the basilar process of the occiput underneath the medulla oblongata, the spot in which arterial rupture usually occurs.

The internal carotid is awanting, but is replaced by a large spheno-spinous, or meningeal branch, which passes into the foramen lacerum basis cranii, sending backward branches to anastomose with the posterior plexus formed by the occipital and vertebral, and forward branches to unite with large arteries given off with the ophthalmic from the internal maxillary, and which gain access to the cranium through the superior sphenoidal canal. From this union the *réseau admirable,* a dense plexus of minute vessels situated at the side of the sella turcica, and communicating with the same network in the opposite side, arises. Finally, the *réseau admirable* originates trunks corresponding to the internal carotids, which unite with the plexus, formed by the vertebrals and occipital, and give off the three cerebral arteries.

The difference in the circulation in the ox and sheep, and upon which I base my theory, is, that in the ox each vertebral, although anastomosing with its fellow proceeds forwards on its relative side of the spinal canal and opposite the atlas, sends off a direct branch to the posterior plexus formed by the anterior branches of the occipital and the posterior branches of the spheno-spinous; while in the sheep the vertebrals pass into the spinal canal, inosculate, proceed forwards as a single artery, again bifurcate, and anastomose with the occipital as in the ox. The posterior cerebral plexus is not, however, developed to the same extent, neither is the circulation so complex as in the ox.

The point to which I wish to direct your attention, is the existence of the plexus of vessels underneath the medulla oblongata in the ox, and the generally larger supply of blood to the brain in comparison with other animals; and further, the direct branch from the vertebrals to the posterior plexus to which I have referred, affords a direct channel of supply which does not exist in other animals. The affections of which I have spoken occur most frequently in short-necked, round-barrelled cows in a highly plethoric condition, the short neck favoring the blood-pressure through the vertebrals on the cerebral circulation, in the act of straining to give birth to the fœtus.

The point of resemblance in the human subject is, that (if I am rightly informed) the basilar artery is formed by the vertebrals, and apoplectic attacks are also most frequently seen in short necked, stoutly-built subjects.

Functions of the Semicircular Canals.

Prof. A. Crum Brown, of Edinburgh, maintains, *Journal of Anatomy and Physiology*, May, 1874, quoted in the *Chicago Journal for Mental and Nervous Diseases*, October, 1874, that we possess a sense of rotation apart from and quite distinct from our other senses. The organ of this special sense he considers to be the semicircular canals, and he explains the difference in sensation from rotation in different directions by the arrangement of the canals. "So far as we know," he says, "a nerve current can vary only in intensity, and not in kind, so that if irritated at all, whether by right handed or left handed rotation, the nerve would convey the same message to the central organ. The solution of this difficulty which I propose is as follows: Each canal has an ampulla at one end only, and there is thus a physical difference between rotation with the ampulla first and rotation with the ampulla last, and we can easily suppose the action to be such that only one of these rotations (say that with the ampulla first, in which case, of course, there is a flow from the ampulla into the canal) will affect the nerve terminations at all. One canal can therefore, on this supposition, be affected by, and transmit the sensation of rotation *about one axis in one direction* only, and for complete perception of rotation in any direction about any axis *six* semicircular canals are required, in three pairs, each pair having its two canals parallel (or in the same plane), and with their ampullæ turned opposite ways. Each pair would thus be sensitive to any rotation about a line at right angles to its plane or planes, the one canal influenced by rotation in the one direction, and the other by rotation in the opposite direction."

The arrangement of the canals favors, in his opinion, this theory, and the relation is the same in all animals. He states this relation thus: "In each ear there is one canal (the exterior) in a plane at right angles to the mesial plane, and two other canals (the superior and posterior) in planes equally inclined to the mesial plane. In no other way is it possible to harmonize the bilateral symmetry of the two ears with the condition that each of the three axes shall have two *oppositely turned* canals in planes at right angles to it."

Ante-Natal Development of Teeth.

The *American Journal of Obstetrics*, November, 1874, states that at a meeting of the Philadelphia Obstetrical Society Dr. Charles H. Thomas related the following history of a case of ante-natal development of nine teeth :—

This case was brought to my notice by Doctress Estelle A. Benedict, then a student of medicine at the Woman's Medical College of Pennsylvania, who informed me that she had attended a woman in her confinement (December 28th, 1873), and that the child, which was normally constituted otherwise, had nine (9) perfect teeth when born. The child was first visited by me when it was four weeks old (January 27th, 1874), in company with Dr. James S. Myers, he having seen it previously, and very soon after its birth.

We found an emaciated male infant, evidently suffering from marasmus and near its death, having five (5) teeth in place and four (4) distinct conical fleshy papillæ, from which a corresponding number of teeth had already been removed. These latter are herewith presented, being two incisors and two molars. It is worthy of note, in passing, that these teeth loosened of their own accord, and not from the pressure of others from beneath. In addition to these, a number of small whitish nodules could be seen and felt along the line of the gums, above and below, lying underneath the mucous membrane, and evidently marking the location of all the other deciduous teeth. No change had taken place in these, as I am informed, up to the time of the child's death, which occurred at the sixth week.

The mother complained of the bite of the child while nursing as being very severe from the first, and despite much urging to the contrary, on the part of her medical attendant, she entirely discontinued putting it to the breast before it was three weeks old.

Whether or not an instinctive or superstitious shrinking from close contact with such a monstrosity contributed to this conduct is not certain, but it seems very probable.

Certain it is that the idea of horror is not infrequently associated with such cases, and in this connection these lines, from Richard III., are not without a certain interest:

Queen Margaret to Duchess of York.

"Forth from the kennel of thy womb hath crept
A hell-hound, that doth hunt us all to death;
That dog that had his teeth before his eyes."

Dr. Curtin recalled two cases of ante-natal teeth which occurred in his practice. The first mentioned had the two front upper incisors and two below. The child died when about three weeks old.

The second had the two upper front incisors. These teeth dropped out when the child was about two months old, and were replaced by the ordinary deciduous teeth, which he was informed is usually the case with this kind of teeth.

There is a superstition among nurses, that the child that is born with teeth dies early.

Anatomical Characteristics of Negroes.

The *American Practitioner*, September, 1874, contains an article by Dr. A. W. M'Dowell, M. D., from which the following extract is made:

During the recent civil war I had ample opportunities for observing the United States colored soldiers in regard to their physical organization, their power of enduring disease or wounds, and for witnessing numerous autopsies. I write simply the results of these observations, not seeking to establish any theory nor to confirm any prejudices, and I am a firm believer in the unity of the human race. I present the truth as it was obvious to me, and I should be glad if others having like opportunities would do the same, and then possibly we might arrive nearer a solution of some of the difficult problems in reference to the negro.

I was on duty during a part of the war at Benton Barracks, near St. Louis, at that time the rendezvous of the colored troops of the Western Department. At one time there were seven thousand of these, together with probably three thousand unenlisted negro men and women and children, all drawing United States rations and entitled to medical services.

Before going to Benton Barracks I had been in charge of the hospital at Ironton, Mo., and while there an order was issued directing post surgeons to examine all colored men in their vicinity, so that if found healthy and available they could be enlisted. Under this order I made numerous examinations, and many enlistments were made. I had examined many white men before, but this was almost my first experience in the examination of negroes, and I was much pleased with the subjects. Such fine development of chest and lungs, according to the standard measurement, I seldom had seen; the expansion and contraction perfect, the measurements up to the fullest standard of army requirements. But when I went to Benton Barracks I saw these soldiers, apparently so fully developed and with such ample chests, dying *easily* and very rapidly of pneumonia, the disease being much more fatal among them than among the white soldiers. I was disappointed, mortified, and surprised that my splendid soldiers should succumb to disease so soon. But autopsies explained the mystery. These soldiers had a remarkable development of the pectoral muscles, and their mammæ were almost as large as women's; but their lungs were much less in weight than the white man's. This proved to me that expansion, contraction, and external measurement of the chest were by no means certain criteria of vital power. Besides, the negro with pneumonia will not bear reducing treatment; he must have stimulants from the first.

Our autopsies too showed that his brain was smaller than the white man's. In the hospital there were two thousand patients—fifteen hundred whites and five hundred colored—including various shades, from mulattoes to full-blooded negroes; the mortality was vastly greater among the latter than among the former. We weighed every brain in our post-mortem examinations, and just in proportion to the admixture of Caucasian blood did the weight increase; the white man's brain was the heaviest, and thus down to that of the pure negro, which was the lightest. I say nothing of relative intelligence. I present no opinions, but simply physical facts.

The negro's liver was larger than the white man's. Masters in the South supplied their slaves with corn-meal, bacon, and molasses. The army ration of the colored soldier differed from that of the white, the former being bacon, corn-meal, and brown sugar. Since the negro's lungs were smaller, his larger liver helped to decarbonize the blood, and thus a proper equilibrium was maintained.

The negro's lower bowel was smaller. The colored troops were much troubled with constipation, often requiring purgatives, while at the same time and place the white troops had diarrhœa. The most marked difference existed between the spleen of the black and that of the white, the former only weighing half as much as the latter. "Ague-cake" was one of the sequelæ of malarial disease observed among the whites, but not among the blacks. The genital organs of the negro, especially true of the penis, were much larger than those of the white man.

These autopsies were made carefully, daily and for a length of time, and the results were as stated. I testify to facts that I repeatedly witnessed. To me they were most striking, almost startling, and I leave my readers to draw their own conclusions from them; but one thing is certain as I saw it—there is anatomically a marked difference between diseases in the black and the white.

II. PHYSIOLOGY.

The Production of Bile Pigment.

The *Irish Hospital Gazette*, October 1, 1874, quoting from Pflüger's *Archiv*, gives the experiments of Dr. TARCHAUOFF on this theme:—

The injection of a watery solution of hæmoglobin into the jugular vein of a dog, in which there existed a permanent biliary fistula, was followed by an increased flow of bile, deficient in fixed constituents, but characterized by a most remarkable increase in the relative quantity of pigment. The author has established the constancy of this result by a series of similar experiments, two of which he now gives in detail. In one of these water only was injected, while in the other a watery solution of bile-pigment was used In both the characteristic increase in the relative quantity of bile-pigment was well marked; but with this difference, that while the former increase was gradual, and, during the first hour, inconsiderable, in the latter it was almost instantaneous, and had attained its maximum within an hour after the injection. In the former also the decrease in the fixed constituents was not so well marked as in the latter. As the water used in these two experiments must have had the effect of producing a "hæmoglobin-solution" in the blood, the one element, viz., a hæmoglobin-solution, was present in these as well as in the first-mentioned experiment; and thus the question, whether the increased quantity of bile-pigment was *formed* by the liver as the result of the stimulus of the hæmoglobin-solution circulating through it, or that it was formed in the blood and merely *removed* by the liver, was left undecided. The author, therefore, modified the experiment by dissolving some bile-pigment in a neutral solution of chloride of sodium. The injection in this case was followed by a sudden and considerable increase in the relative quantity of pigment, which, however, soon began to decrease, and in less than two hours had completely disappeared. The actual increase corresponded very closely with the quantity of pigment injected. In a repetition of the experiment, followed by a similar result, the urine, collected from the ureters, contained no trace of bile-pigment. From these experiments, combined with those already noticed, the author concludes—1st. That bile-pigment may be produced independently of the liver; and 2d, that bile-pigment, whether in large or small quantity, circulating in the blood, is [normally] taken up and separated exclusively by the liver. Recent experiments have induced the author to abandon the idea that bile-pigment excreted with the urine may escape detection owing to reabsorption by the walls of the ureters or bladder.

Intestinal Secretions.

At the last meeting of the British Association for the advancement of Science, Dr. **Pye Smith** read a report of the committee appointed to investigate into intestinal secretions.

The committee had endeavored to ascertain—first, whether other neutral salts had a imilar effect to that of sulphate of magnesia on intestinal secretion; secondly, whether any other compound had the power of preventing such action; and thirdly, what were the nerves which regulated those secretions during life. The experiments showed that several other neutral salts possess a similar action to that of sulphate of magnesia, though none are so constant or so marked in their action. With regard to the second subject of inquiry, experiments were made with sulphate of atropia, chloral hydrate, and other substances, but in none was any effect observed in diminishing the average amount of secretion produced by sulphate of magnesia; there appeared, therefore, to be no action analogous to that of atropia upon the secretions of the submaxillary gland. With reference to the third point, it appeared from experiments on the splanchnic nerves, that those nerves are not the channel by which the currents from the cord pass to the secretory apparatus of the intestines. What that channel is, the committee proposes to ascertain by further investigation, which it was intended to apply not only to the secretion, but also to the movements of the intestinal tube.

The Action of Certain Muscles of the Forearm.

The *Lancet*, September 19, 1874, observes that:—

The doctrine so long maintained that in rotation of the hand the radius alone rotates round the ulna, has recently been contested by Dr. O. **Lecomte** (*Archives de Médecine*, August, 1874), who maintains that this conclusion has been drawn from dissecting-room experiments, in which all the muscles are stripped off the bones, and the humerus and ulna are held in a fixed position; but this is not the natural condition, and the fixation of the ulna in the movement is contraindicated by the plainest evidence of the senses. The movement, M. Lecomte observes, is not around a single invariable axis passing through the middle finger, but this axis may be displaced either inwards or outwards, and may thus pass through one of the other fingers or intermediate spaces, and *both* the bones of the forearm participate in the movement. The play of articulation is very complex in the act of rotation, the humero-cubital articulation in particular having an important *rôle*. The ulna executes a spiral movement of torsion on the trochlea of the humerus, which may vary in extent, but which is present in the different kinds of rotation. At the wrist the movement is quite peculiar, the surfaces of the radio-cubital articulation gliding in opposite directions over each other to an exactly equal and corresponding extent. The system of the rotator muscles of the hand comprises four muscles; two for the radius and two for the ulna. Each of these bones has a pronator and a supinator attached to it. There is a radial pronator (the pronator teres), a radial supinator (the supinator brevis), an ulnar pronator (the anconeus), and an ulnar supinator (the pronator quadratus).

On a Microcephale.

Mr. **Maclaren**, of the Royal Edinburgh Asylum, reports the following case in the Edinburgh *Medical Journal*, October, 1874:—

J. G., æt. 17, was admitted from Craiglockhart Poorhouse into the Royal Edinburgh Asylum, on 30th May, 1874. As I have said, there was no previous history obtainable, but his mother was stated to have been addicted to drink, and a bad lot generally. The certificate stated that he was a complete idiot, and utterly devoid of intelligence.

When the usual examination on admission was made, the following was found to be his condition: He was about the size of a child of five or six years, and extremely emaciated. His weight was 2 stones 4 lbs. All his large joints were permanently contracted, and those of the wrist seemed of much greater size than usual. The thighs were flexed on the abdomen, which was tumid. The arch was wanting in both feet, and the toes were larger than usual. The eyes were large, prominent, and in constant motion. This motion was very peculiar. The eyes were rolled about apparently without being attracted by any object, and then, every three or four minutes, both were turned inwards. After remaining so for a few seconds, they again began to roll, as though their muscles were subject to a constantly recurring series of convulsions. This condition has continued ever since admission. The left pupil was much larger than the right. The mouth was large, with saliva constantly dribbling from it, and the teeth well formed. Of these he had—

	M.	B.	C.	I.	I.	C.	B.	M.
Upper	2	2	1	2	2	1	2	2
Lower	2	2	1	2	2	1	2	2

The two central upper incisors were larger than the two lateral and those in the lower jaw. The upper incisors were even; the lower not so, but overlapping somewhat. He had almost no power of voluntary motion in any of his limbs, but lay curled up in whatever position he was placed. His head looked extremely small, and the forehead retreated rapidly from the supra-orbital ridges. The measurements of the head were—longitudinal, 8½ inches; transverse, 7½ inches; circumference, 15 inches. These measurements are not by any means the smallest that have been noted, but nevertheless, as will be seen, they are greatly below the normal. The head was largely developed in the basilar region, but otherwise symmetrical, and covered with short, thick hair. The sexual organs were not more developed than those of a child a few years of age. The temperature was 95° in the axilla, and the pulse 72. The palate was much arched. He showed no power of articulation whatever, the only sound emitted by him being a shrill, painful, continuous crying, which ceased when food was administered. He swallowed with great difficulty, and had to be fed with liquid diet. The sense of hearing seemed dulled, but was not wanting, and it was through this that he displayed a very slight manifestation of pleasure. If a loud and constant whistling was kept up near him, it evidently arrested his attention, for he turned his looks to where the sound proceeded from, and then, after a little, stretched his lips into a kind of laugh. His sensibility to cold was great, as also was that to touch, as was evidenced by his crying when either was applied to him.

His present condition continues almost exactly the same as what is described above. His habits are entirely dirty. He has not been subject to fits since his admission. His temperature remains always about the low degree noted above. With the exception of the notice he takes of sound, he seems utterly unattracted by anything. Bright objects, animals, strangers, or his usual attendants, are all treated with perfect indifference. It is said that his mother used to take him about with her as an object to excite sympathy, and thus any opportunity of training him was lost, and he was allowed to go on from bad to worse. It is not easy or necessary to write a long description of his case; indeed, its principal characteristics are a series of negatives; nevertheless, it is interesting, and not unworthy of notice.

One thing has specially struck me in watching him, viz., that he is totally unlike any animal except a human being. He is certainly a very degraded or non-developed one, but still he is a human being, and nothing else. An ape of the size and age of this creature would be strong, vigorous, cunning, and with the strongest animal passions and instincts. Self-preservation, the desire for, and the ability to obtain food, love of the opposite sex, and many other instincts and appetites, would be markedly displayed. In this unfortunate object, however, there is none of this. If left to himself for a very short time, he would of course perish from hunger; and his appreciation of danger is evidently of the smallest, which is so far lucky, as even if he did appreciate, he could not avoid it. Fortunately, too, sexual appetite, and the power to propagate his miserable species, is altogether wanting.

Temporary Loss of Voluntary Power, produced by a Touch on the Head.

James Dunsmure, Jr., M. D., F. R. C. S. E., Physician to the Royal Hospital for Sick Children, Edinburgh, cites the following interesting case in the Edinburgh *Medical Journal*, October, 1874:—

A. B., age five years, was brought to the Children's Hospital on the 16th of January, 1874, suffering from a temporary loss of voluntary power, produced by anything that touches his head without his being conscious of it going to be touched.

The patient's mother gave the following history on his admission:—He enjoyed perfect health, with the exception of an attack of measles, followed by pneumonia, until he reached the age of two years and a half, when one day, on patting him upon the head, she noticed him fall forward into her arms. Ever since that time, on his head being touched, without his before being made aware of it, he has fallen to the ground. He walked when two years and three months old. Dentition was easy. At first, the attacks were slight and frequent, but diminished in number on his being kept in bed.

Lately they have increased in frequency and severity, and last about five minutes, when perfect recovery takes place. He is never insensible during one, but appears perfectly conscious of everything that is going on around him. Three months ago he was noticed to lose the power of his right arm and leg during an attack. If he has anything in his hand at the time, it is immediately dropped. When he is made aware that his head is to be touched, no attack takes place. On his getting a knock on the back, or any other part of the body except the head, he does not fall, but starts a good deal. From infancy he has started and screamed much during his sleep. He has no fear of being left alone in a dark room. He never had convulsions during teething, and never had a fright. He is unable to speak, with the exception of saying a few words, and is very much frightened at animals, as a dog or cat, but is not in the least shy with strangers, making friends with them at once. He has never suffered from worms, and his bowels are regular. Unless he is kept warm round the lower part of his body, he is subject to incontinence of urine. His gait has always been noticed to be unsteady. Lately, on awakening from sleep, he cries, and is more irritable than he used to be.

Family History.—He has two brothers and two sisters, all of whom are healthy, with the exception of one sister, who suffers from curvature of the spine. There is no history of epilepsy on the father's or mother's side. The father is of a very nervous temperament.

Present Condition.—The boy has the appearance of perfect health, and is well nourished. The head is well formed. The eyes are bright; there is no squinting, though he has a habit of looking sometimes from under his eyebrows, which gives him a look as if he squinted. He does not speak, but only says a few words with *o* in them, as "horse," which he pronounces "oss," "open" "ope," although he understands every word that is said to him. He hums several Scotch airs very correctly, and is very fond of music. He sleeps well, but starts much in the night; when he awakens his face is always much flushed, and he cries for a little time afterwards. After an attack, on asking him if he has any pain, he points to his head, but is not able to indicate any particular affected spot. On touching any part of his head sharply when he is unaware of it, he immediately falls to the ground, perfectly powerless, though quite sensible, and remains lying for a minute or more till he is able to rise again. The first time I saw him, the muscles of the right arm and leg were slightly tonicly convulsed; but that is the only time I ever noticed any approach to a convulsion. His mother told me that once or twice, when he had had a very severe fall on a day when he was particularly sensitive to attacks, she noticed slight tremor of the right arm or leg, or of both legs alone. During an attack he occasionally cries; the eyes are either half-shut or open, the pupils are unaffected; the face is generally flushed, but it sometimes becomes very pale a short time afterwards, and the arms fall to the side. The sphincters are never relaxed. On days when he has had a number of attacks, the hands are very unsteady, and shake a good deal. He has a tendency to fall to the left side; sometimes the right arm and leg are quite powerless, and remain so for a minute or more, and then recover, while he generally raises the affected arm up with his left hand. Within the last three months he has used the left hand more than the right for doing anything, as feeding himself, etc., etc.

It is not necessary for a second party to touch the head to induce an attack, for he frequently causes himself to fall while playing with a piece of paper or a ball, if it happens to come in contact with any part of the head; or even when touched suddenly with his own hands, or in feeding himself, if the spoon comes against his face. Combing his hair is a frequent cause of an attack On being made aware his head is to be touched, is able to withstand the attack, even if a severe knock is given. He is generally in the greatest spirits, playing and romping about with other children; but some days he is irritable and dull, and on those days he is particularly subject to attacks. On the posterior part of the head there are generally one or two swellings, due to the falls he receives. Tapping him over the spine, especially in the dorsal region, causes him to start, and the right arm is jerked slightly away from the body. While eating anything hard he sometimes falls; for example, if given a lozenge or a bit of sugar, he bites it very cautiously, evidently afraid of it breaking, which, if it does suddenly, he either starts or falls down.

Galvanism applied to the head produces no attack, nor does the sudden application of heat or cold. Any sudden noise has no effect. When his head is touched during sleep, his whole body starts violently, and in about a minute or less his face becomes paler, which appears to me to be very much the same phenomenon as is produced when he is awake, only he is in the recumbent position, and is not able to fall. He drags his right leg very slightly on walking, and on going up stairs he always puts the left one up first. The digestive system is in good order; tongue moist and clean; urine normal; heart and lungs quite healthy; pulse 100; temperature 98.4°. Dr. Argyll Robertson kindly examined the eyes for me with the ophthalmoscope, and found them quite healthy. During the last six months he has improved very much; the attacks are neither so numerous nor so long. At present they rarely last above a minute.

Treatment.—When he was brought to the Hospital he was put upon five grains of bromide of potassium three times daily, which he continued for three weeks; but as he made no signs of improvement, and the attacks got worse, it was changed to Easton's syrup, which he took for some weeks. At first he got rather better, and his general health improved; but as the attacks were still continuing severe, I determined to try a course of arsenic, which he commenced about the beginning of March, and continued to the middle of May; during which time the attacks were not so frequent. Since then he has been having belladonna, which seems to suit him better than anything he has tried, so much so that for a whole week he had only one attack; and I thought he was going to get better, but since then he has had attacks, though not so numerous and severe. I was induced to try belladonna, from having read in the *Lancet* of its good effects in a case narrated by Dr. Ogle, which resembled this one, 1st, in the apparent consciousness during the attack, and, 2d, in that it could be produced by a touch, viz., on the left arm.

Dr. Ogle's differed from mine in there always being true convulsions, and the inability on the patient's part to resist the attack. I have been anxious to bring this case before the Society to-night owing to its peculiarities; so far as I know, no case presenting all these characters together having been observed before. A good many cases have been reported, where, from stimulating some part of the body distant from the heart, a regular epileptic fit has been brought on preceded by an aura; but this one differs from most of them by the almost invariable absence of any convulsive movement, together with the seeming consciousness during an attack, and of the power of warding it off under certain circumstances. It is extremely difficult to know whether there is at the time of fall a momentary loss of consciousness or not. If attacks have been induced when he is sitting, I have noticed his head fall forward for a second, and then immediately recover itself, during which time he may have been unconscious, or the falling forward of his head may have been entirely due to the loss of voluntary power.

If I may venture to give an opinion as to the nature of this curious affection, I am rather inclined to put it under that class of disease called epileptiform, but hope to have the views of members of this Society more experienced in obscure diseases of the nervous system than myself.

The Physiology of the Kidney.

M. Charcot, in a lecture on the Physiology of the Kidney in *Le Progrès Médical.* No. 36, quoted in the *British Medical Journal*:—

Refers to some experiments recently performed by M. Heidenhain, the result of which has been to confirm in a remarkable degree Bowman's well-known theory of the function of the Malpighian bodies and of the convoluted tubes respectively. Bowman believes that, while the Malpighian bodies are the main outlets for the watery part of the urinary secretion, the peculiar solids of the urine are secreted by the gland-cells which line the convoluted tubes. In opposition to this theory, Ludwig and others suppose that all the constituents of the urine are secreted in a very diluted state by the Malpighian bodies alone, while the function of the tubular portions of the kidney is to absorb the excess of water. It has always appeared to us that, while Bowman's theory is consistent with the anatomical facts, the theory of Ludwig is consistent neither with facts nor with physiological analogies. M. Heidenhain's experiments, as we have said, are confirmatory of Bowman's theory. The living kidney has a strong affinity for indigo; so that, when an alkaline solution of sulphate of indigo has been injected into the blood of a living animal, the urine and the kidneys quickly become tinged by the coloring matter. By varying the conditions of the experiment, M. Heidenhain found that he could determine the exact part of the glandular structure by which the coloring matter of the indigo was excreted.

The effect of dividing the spinal cord below the medulla oblongata, while artificial respiration is performed, is to cause complete suppression of urine; but sulphate of indigo, having been injected into the blood, is found to have given a blue tinge to the convoluted tubes, while the Malpighian bodies and the straight tubes remain untinged. The coloring matter of the indigo is found in those portions of the kidney which are believed to perform the true excretory function. But the analysis was carried further. If the animal were killed ten minutes after the injection of indigo into the blood, the coloring matter was found only in the cells of the convoluted tubes, while the clear canals within the tubes were free from color; but, if an hour or more had elapsed before the death of the animal, the color was found to have passed from the gland cells into the canals of the tubes, where, in the absence of water to remove it, it formed a crystalline deposit.

M. Heidenhain performed other experiments with similar results. Thus the effect of ligaturing the ureter is to cause complete suppression of urine. If, after this result has been obtained, indigo be injected into the blood, the gland-cells of the convoluted tubes become tinged precisely as in the experiment before described. These experiments show that the secretion of the coloring matter by the kidney takes place when the watery secretion is suppressed; and this separation of the coloring matter is effected by the gland-cells which line the convoluted tubes. It is in the highest degree probable that the solids of the urine are secreted in like manner by the same cells. M. Heidenhain found that, after the injection into the blood of a concentrated solution of urate of soda, the salt was deposited in the form of yellow granules within the convoluted tubes, while the Malpighian bodies contained no trace of the deposit. This result of injecting urate of soda is analogous to what is normally found in birds, whose urine is mainly composed of granules of urate of soda; and Von Wittich has observed that, while the granular salt may be found within the gland-cells of the convoluted tubes, the granules are never seen within the Malpighian bodies.

These experiments render it in the highest degree probable that, while the specific urinary constituents are secreted by the gland-cells which line the convoluted tubes, the Malpighian bodies pour out water to flush the tubes, and the straight tubes of the medullary portion of the kidney act as conduits for the urine which has been secreted in the cortical portion of the gland.

On Localization of Cerebral Functions.

The following debate took place at the last meeting of the British Medical Association, and is reported in the Association's Journal. It gives the views of several able specialists:—

Dr. Ferrier read a paper, explaining his views on the localization of function in different parts of the brain. Dr. Bateman (Norwich) said there could only be one opinion as to the extreme value and importance of the communication with which it was their privilege to have been favored by Dr. Ferrier. As he had reason to believe that his (Dr. Bateman's) views upon this subject were generally known, he would rather not have begun the discussion. He wished to take this opportunity of saying that he by no means desired dogmatically to urge his views upon the profession, nor did he wish it to be understood that he had any pretension that his feeble researches upon this subject had in any way settled the question in dispute. He had collected a variety of observations from English, American, German, and French authors, together with cases observed personally by himself, and he found so many exceptions to the principle of localization of the faculty of speech in any definite portion of the brain, that he claimed at least the Scotch verdict, "Not proven." The cases to which he alluded could be divided into two classes:—1. Those in which not only the third frontal convolution was destroyed, but the contiguous parts, and, in some instances, almost the totality of the anterior lobe, and yet speech was not impaired; 2. Those cases in which the converse condition existed —viz., aphasia, with perfect integrity not only of this third frontal convolution, but of the entire brain. He was perfectly well aware that the supporters of Broca's theory might say that in these cases there may have been some slight disease, not appreciable by our present means of investigation. Now, this was an objection which might be raised against all negative conclusions. He admitted that loss or lesion of speech might depend upon an altered condition of cerebral tissue not patent to the sense of vision—to the eye—for the microscope was only the aided eye. He admitted that there might be some altered electrical condition of the cerebral tissue, some thermal or chemical change, not appreciable by our means of investigation. There was one class of cases which seemed to him to be inconsistent with the idea of organic change of structure—*i. e.*, cases of temporary aphasia. He might cite a case which he had published in his work *On Aphasia*, in illustration of this point. He was requested by his friend Mr. Allen to see with him a man aged 37, who, whilst taking a meal, was suddenly deprived of the power of speech. He continued speechless for six days, without any paralytic symptom being present, when, being asleep on his couch, he suddenly started up, and was heard to say three times, "A man in the river." From this moment speech was restored; and when he (Dr. Bateman) saw him an hour afterwards, he told him he had dreamed that a man was falling into the river. The mental shock produced by this dream was salutary, for it resuscitated the previously dormant faculty of articulate language. He would like to elicit further information as to the effect of cutting off the direct supply of blood from the left side of the brain by ligature of the common carotid artery. He had collected several cases in illustration of this point, and in the majority of them speech was unaffected. He (Dr. Bateman) considered further investigations were needed; and he deprecated rash and hasty conclusions from imperfect data. The whole question was involved in so much obscurity that it was only by discarding all preconceived opinions, and by carefully studying the various phases of the cases which one had the opportunity of closely watching, that one could hope to throw further light on one of the most complex questions of cerebral pathology—the localization of the faculty of speech.

Dr. Milner Fothergill considered Dr. Ferrier's contribution to be one of the most important of modern times, and brought forward objections to the views of Dr. Bateman. He (Dr. Fothergill) had been pursuing for some time an inquiry with regard to the supply of blood to the brain, upon which its functional activity depends. He thought cerebral anæmia might account for some of the phenomena described by Dr. Ferrier.

Dr. Batty Tuke thought with Dr. Bateman that sufficient importance had not been given to cases of aphasia in which no lesion had been found to exist. In one case which came under his observation, where there was complete obliteration of the region of Broca, no aphasia whatever was observed.

Dr. Dowse remarked that there were several points of special interest in the paper. Dr. Ferrier had proved conclusively that there were certain centres of movement, but he was not clear that the movements produced by experiment had origin from those centres; there was no movement produced by touching the island of Reil, but this could be explained anatomically. Dr. Dowse thought that the author's observations were in the main correct, but that they still required further elucidation, and remarked that we cannot deal with the subject better than by clinical observation. In more than a hundred instances, he had proved absolutely the truth of Broca's view with regard to the third convolution. He concluded by stating that it is not fair to assume, because we find no *post mortem* appearances, that no disease exists, especially as a host of observations show the truth of Broca's theory of localization.

Dr Eade had seen cases in which aphasia was a marked symptom, and in most of these there was disease in the left frontal convolution.

Dr. Ferrier replied that, with regard to Dr. Bateman's remark that he (Dr. Ferrier) had given too much importance to movement and too little to mind: before there can be an idea there must be a point where an impression can be stored up. If no impression be left, there is no memory. Psychical impressions are bound up with sensation and motion. The centres of memory are probably the same as those of movements. He had no explanation to offer to Dr. Tuke, as he thought his case did not militate against localization of function in the brain, but only against Broca's theory.

Ferrier's Experiments on Cerebral Functions.

In a review of Dr. Hitzig's work on the Functions of the Brain, in the *Chicago Journal of Nervous and Mental Disease*, of October, 1874, are some criticisms on Ferrier's experiments.

Dr. Hitzig feels aggrieved at the manner in which his prior researches are noticed, and their want of appreciation from the British author. He quotes the paragraphs in which Dr. Ferrier has made mention of his labors, and accuses him of misrepresentation and appropriating, or at least claiming originality in discoveries which had already been made by his German predecessors. The paragraphs quoted do not, indeed, do justice to their work, inasmuch as they convey the idea that Drs. Hitzig and Fritsch had made only imperfect and inconclusive experiments, the signification of which they only partly understood. The author enters, in his own name and that of his coadjutor, his protest against this treatment on the part of Prof. Ferrier, and proceeds to review in detail the points of his papers on the physiology of the brain, which have appeared in the *West Riding Lunatic Asylum Reports* and the *Journal of Anatomy and Physiology*. As this is, in many respects, one of the most important of all the papers in the book, and as it is here given in print for the first time, we shall follow Dr. Hitzig's review in his own order.

He first takes up the methods employed by Prof. Ferrier, and gives them a thoroughly hostile criticism. He first comments on the small number of vivisections and experiments from which the English author's conclusions were drawn, up to the time of the publication of his paper, and the acknowledged lack of perfect success in some of them, and remarks that, even if the discoveries made were altogether new to science, their publication under these circumstances might be of doubtful propriety, and then asks what is to be said of the publication of conclusions drawn from such insufficient materials, three years after another's prior announcement? As regards the comparative value of the induction and galvanic currents, he claims that though he has used the former less than the latter in his experiments, he can yet claim to have had a larger experience with it than Ferrier shows in his account of his investigations. He criticises very severely the employment of the powerful currents used by the latter, and gives at length the disadvantages of their use, claiming that Ferrier must have been ignorant of the laws of the ramifications of currents in moist, non-prismatic conductors, and that some of his detailed experiments display this ignorance to the fullest extent. Finally he claims that the precautions taken by Ferrier to exclude reflex movements from complicating the results were altogether insufficient, as the animals struggled, bit and cried while the experiments were being performed.

Next, taking up the results of the investigations of the English author, Dr. Hitzig states the principal difference between them and those of his own researches to be, first, that Ferrier found nearly the whole cerebrum excitable, especially the frontal and larger portion of the occipital and temporal lobes, while, in the experiments performed by Fritsch and himself, these latter, and also a portion of the frontal lobes did not react to irritation. The second principal difference is in the fact, that Ferrier describes several different points of excitation for the same group of muscles, and also produced from the same point in the cortex movements of altogether different groups, while the German investigators only considered those points as centres from which special muscular movements were produced with an extremely slight current intensity; and for each muscular group but one of these centres was found. This difference is to be explained, the author thinks, by the difference in the currents employed. He points out some of the contradictions which some of Dr. Ferrier's experiments display between themselves, and states that he has experimentally tested his results on dogs, cats and Guinea-pigs, and gives in detail a comparison between effects of irritation of the brains of each of these by the two methods, pointing out the special differences in the reactions of each in experiments on each species, illustrating the points he makes with wood cuts. We cannot follow him in all these details of his test experiments; they appear to have been quite numerous and carefully performed. The points which Ferrier had fixed as the centres are taken up *seriatim*, and his observations subjected to a searching criticism. The only discovery for which he gives credit to Ferrier is that of the part which controls the movements of the mouth and tongue in eating. He says, summing up the whole: "To recapitulate, Ferrier has, by a very objectionable method, and in an extremely superficial manner, shown that by powerful electrical irritation of the anterior and basal portion of the brain in dogs and cats, the motions of eating may be induced. In this consists his merit. On the other hand he has not, in a single instance, accurately relocated any of the excitable points discovered by us; he has, indeed, made a number of statements concerning inconstant reactions or those brought about by imperfect methods; and finally he has adorned his work, without credit, with discoveries that belong to us and not to him."

Functional Differences between the two Cerebral Hemispheres.

The following extract is from a lecture in the *Lancet*, September 26, 1874, by H. CHARLTON BASTIAN, M.D., F.R.S., Physician to University College Hospital; and Senior Assistant-physician to the National Hospital for the paralyzed and epileptic.

The first subject to be considered under this head is one to which very much attention has been given of late years, I allude to the *various defects in the power of speaking or writing* induced by cerebral disease. I have already spoken to you of those difficulties of articulation which, when constituting part of the hemiplegic state, are most marked where we have to do with lesions of the pons Varolii. Here the difficulty in articulation may be so great that no articulate sound can be uttered, and this speechless condition is usually associated with more or less immobility of the tongue and difficulty in swallowing. But, as a patient affected in this way gradually gains power, it is easily ascertained that we have to deal with a mere difficulty of articulation: there are no mistakes made in the way of using one word for another, neither is there any difficulty in recalling the word needed—the difficulty is, in fact, confined to the process of verbal utterance. Minor degrees of a similar difficulty in articulation are often met with in cases where large cerebral lesions are situated higher up than the pons—that is, in parts nearer the cortex of the hemispheres. Where the lesions are in these situations, the defects in power of articulation not only tend to become less marked as the cortex is approached, but they also last for a much shorter time. When disappearing, or in their slighter forms, these defects dwindle away merely to some slight "thickness of speech."

Other modes of impairment of speech exist which have been roughly classed under the names "Amnesia" and "Aphasia;" and it would seem that the various defects in articulate speech are to be paralleled by similar defects in the power of intellectual expression by means of writing. In the defects classed under the head of "Amnesia" we have to do apparently with a kind of inco-ordination in the action of those higher centres whose business it is to translate thought into the corresponding motor acts of speech; there is an irregular carrying out, in fact, of those nerve processes by which the thought of the patient receives that physical expression which renders it intelligible to others. The individual knows what he wishes to say, but there is a defect in the subsequent molecular actions going on in his higher nerve centres, of such a nature as to cause hesitation or delay in the utterance of right words; and, what is worse, the substitution occasionally of an entirely wrong or meaningless set of words in the place of those which he wishes to utter. Although the patient may be quite unable to prevent these mistakes or failures, he usually shows by his manner that he is aware of having made them—and yet attempts to rectify the mistake only serve to make matters worse. This defective action in the speech centres and their related parts is very comparable with what occurs in other nerve centres in locomotor ataxy. Here a man may have an adequate knowledge of what he intends to do, though when he attempts to move his legs in certain definite directions he jerks them about in an irregular manner, or even moves them in quite contrary directions. In each case we have to do not so much with lack of power as with involuntary misdirected power. All grades of this kind of defect in speech are met with, varying from mere forgetfulness or slowness in the use of words up to such an entirely wrong use of them as to make speech almost wholly unintelligible. And such a defect in oral speech often co-exists with a more or less marked difficulty of the same kind in the translation of thought into written speech—that is, in writing. The patient is then able to perform the mechanical act very well, though he cannot group letters correctly into words—that is, he spells altogether wrongly, or even writes words which have no resemblance to those he wishes to employ. Such a patient, moreover, often cannot group words so as to form definite propositions; he omits some words, or he uses altogether wrong words in his written attempts to express himself—although the same patient may be able to copy quite correctly any writing which is placed before him, or even to translate into written characters what he has before him in a printed page. The latter performances are, however, only imperfectly achieved in other cases.

Now, of these defects, I may at once point out to you that the difficulties of articulation may be met with in lesions of either side of the pons, and also with lesions in higher parts of the brain on each side. Amnesic defects, again, which are most marked and most frequently associated with lesions of the cortical grey matter, occur about as frequently with lesions of one as of the other hemisphere. Dr. Hughlings Jackson, however, as well as Brown-Séquard, are not exactly of this opinion; they believe that both difficulties in articulation and amnesic defects in speech are more frequent with lesions of the left than with lesions of the right hemisphere. On the other hand, concerning aphasic defects there is much more of general agreement. All observers now admit that in the great majority of these cases (that is, where we have to do with right-handed people) aphasic defects are associated with lesions of the left hemisphere and right-sided paralysis.

Under the name "Aphasia" we include a group of cases in which the patient is mostly unable to speak, although his occasional distinct utterance of some one or two words shows that his speechless condition is not due to a difficulty in the actual performance of acts of articulation of the kind met with in lesions in or near the medulla and pons Varolii. Aphasic patients are unable to give voluntary and preconsidered expression to their thoughts, though words or even short phrases may occasionally be uttered under the influence of strong emotion—that is, in a more purely reflex manner. We often find such patients able to make use of common words like "yes" or "no" in response to questions addressed to them, though they may be quite inappropriately employed. Here also the word is uttered, as Dr. Hughlings Jackson has pointed out, in a sort of reflex manner, since such a patient is generally quite unable to repeat one of these words immediately afterwards when asked to do so: he cannot utter it in a voluntary manner. Sometimes this inability to act under volitional stimuli is not confined to the case of speech. The patient is unable to do other much more simple things; and, strangely enough, we constantly find him more unable to perform certain simple acts voluntarily in obedience to incitations which have been made upon the auditory perceptive centres, than when corresponding incitations have been made upon the visual perceptive centres. Thus you will recollect how the aphasic man, C——, lately in our wards, like many others, constantly made the most abortive and ineffectual attempts to put out his tongue when he was merely told do so, and how rapidly it appeared when he received the same request through his sense of sight—that is, after being shown through his visual perceptive centres what we wanted. His performance of the act in the latter case was just as voluntary as it would have been had the tongue been protruded after a simple spoken request. The voluntary action was possible in one case, though it was impossible in the other, where the inciting stimulus had to operate through the ear and the auditory perceptive centre.

The mental power of patients who are aphasic is sometimes damaged very much—that is, when the aphasic condition has been induced by an extensive or severe brain lesion. But there are several instances on record in which, though the aphasic condition itself has been most complete, the mental powers of the patient have been well preserved. These individuals have been able to read intelligently to themselves, and play such games as draughts and cribbage perhaps better than their neighbors. The right hand being usually paralysed in aphasic cases, the patient does not write; and often, doubtless, he would not be able to express his thoughts in this way even if he possessed the necessary skill with his left hand. Some aphasic patients, however, can express themselves in writing, and learn to do it with the left hand.

By the time that some amount of recovery has taken place—that is, after the patient begins to speak again—we often find the aphasic defect to be associated with one of an amnesic character. You will, in fact, frequently meet with these two conditions variously intermixed and sometimes (as in a remarkable case recorded by Dr. William Ogle, and also in one which was for a long time under my own care), though the patient is able to speak fairly well or with only an occasional use of wrong words, he has lost the power of forming letters, and can only make mere unmeaning strokes. Such patients, moreover, can scarcely read at all, and cannot spell correctly. Thus, just as we have incoordinate defects which show themselves both in oral speech and writing, so we have true ataxic defects in which there is loss of power in writing as well as in speaking. That is to say, the loss of power of writing—or the agraphic defect proper—may exist in cases where the paralysis of the arm has been recovered from.

A careful investigation of the subject we are now considering has sufficed to convince me that all the cases of defective intellectual expression, either by speech or writing, or by both, are capable of being ranged under one or other of eight different groups. And although these various defects are most frequently associated with a hemiplegic condition, it must not be forgotten that they occasionally occur—some of them more especially—without paralysis of the limbs. The first three groups will include *amnesic defects* only, and are as follows:—

1. Amnesic defect in speaking, but power of writing correctly preserved.
2. Amnesic defect in writing, but power of speaking correctly preserved.
3. Amnesic defect both in speaking and in writing.

We have then two groups in which *amnesic* and *ataxic defects* are conjoined.

4. An amnesic defect in speaking, with loss of power of writing.
5. An amnesic defect in writing, with loss of power of speaking.

And, lastly, we have three groups in which *ataxic defects* only are met with.

6. Loss of power of speaking, but power of writing preserved.
7. Loss of power of writing, but power of speaking preserved.
8. Loss of power both of speaking and of writing.

Though the theoretical explanation of these various states is a subject of great interest, its consideration would detain us too long. Very different opinions are, moreover, entertained upon the difficult and intricate questions which lie at the root of the problem, so that the subject does not admit of a brief or concise treatment.

I pass on, therefore, to speak of certain anatomical facts which have been made out in reference to the aphasic states. In the great majority of instances in which it presents itself, we have to do with right-sided paralysis produced by a lesion in the left hemisphere. In fact, a long series of observations has compelled us to recognize the greatly superior activity of the left hemisphere, as compared with the right, in initiating motor acts subservient to intellectual expression. Just as the left hemisphere has undoubtedly to initiate the muscular acts by which writing is effected in right-handed individuals, so it would appear that from this same half of the brain the incitations pass over which are destined to excite the motor acts of speech—even though the muscles concerned are bilaterally disposed, and habitually act in concert, on the two sides of the larynx, tongue, and lips. There is reason to believe that this action of the left hemisphere in relation to the acts of speech is connected with a very slight precedence in its development as compared with that of the opposite hemisphere; and that this precedence is itself a more or less remote consequence of an inherited tendency to right-handedness. Accordingly it has been found, in a few well-marked cases, that aphasia when occuring in left-handed persons goes with left rather than with right-sided hemiplegia. More facts, however, are still needed thoroughly to clear up this part of the subject.

Something definite may also be said with reference to the situation or part of the left hemisphere which is specially affected in aphasic individuals. In such cases the lesion has been principally met with either (1) in or around the third frontal convolution, (2) in the white substance between this convolution and the left corpus striatum, or (3) in this latter body itself.

Looking to the records of carefully-sifted cases, there can remain little doubt, I think, as to the importance of the third frontal convolution on the left side, in regard to the power of intellectual expression. This being the region originally pointed out by M. Broca, is often spoken of as "Broca's convolution;" and though we need not regard.it as the seat of any supposed "faculty of language," we may easily imagine that the volitional stimuli destined to incite the motor acts of speech would pass off from a part of the brain which was in intimate functional relationship with many other regions of the hemisphere. There must be some spot from which such motor stimuli habitually pass over, if any definite order is observed in the discharge of brain functions, and this we are compelled to believe does occur. It is also easy to imagine that lesions in and around this spot, according to their direction, would variously interfere with one or other of the functionally related parts, and so tend to occasion considerable variety in the kind of defect actually produced. And here, gentlemen, I am happy to tell you that the facts disclosed by minute anatomical investigation strongly tend to confirm the views upon this subject which we have derived from clinical and pathological observation of aphasic cases. Dr. Broadbent has found that the third frontal convolution, whilst it is connected with the corpus striatum below, and with the opposite hemisphere through the corpus callosum, has more abundant and complicated connexions with different parts of the same hemisphere than any other convolution in the brain. He says:—"It receives fibres from the convolutions of the island of Reil, from the inframarginal convolutions of the fissure of Sylvius, and from parts posterior to it in the supramarginal convolution, from the second frontal and first frontal gyri, and from the orbital lobule, also from the two great longitudinal commissural systems—the axial and fasciculus uncinatus—by which it will be brought into relation with the convolutions on the convexity of the hemisphere, and on the under surface of temporo-sphenoidal lobe." The third frontal seems therefore to be a convolution having those complicated relations with the other parts of the brain which we should have the right to expect it would have in the event of its being immediately concerned in the determination of the motor acts of speech; it is proper to add, moreover, that it appears to have similarly complicated relations with other parts on each side of the brain. The functions of the two convolutions are doubtless the same, and in all probabilty they habitually act in unison by means of their commissural connexions (through the corpus callosum), the only difference being that the outgoing or volutional motor stimulus usually passes off from the convolution of the left side.

But whilst the left hemisphere is more especially concerned in the performance of the voluntary motor acts of speech, it would appear that there are also certain peculiarities of function pertaining to the right hemisphere more especially, and these peculiarities we have now to consider.

It seems from the observations of Brown-Séquard, and also from those of Mr. Callender, that lesions of the right hemisphere are, other things being equal, more frequently and more rapidly fatal than lesions of the left hemisphere; and also that the hemiplegic symptoms resulting from such lesions are proportionately more severe and more lasting than when they result from analogous lesions in the left hemisphere. This conclusion has been arrived at in part from a careful comparison of cases occurring in the human subject, and in part from a study of the results of experiments upon the lower animals.

The preceding conclusion seems, moreover, to be strengthened by the fact that disorders of nutrition on the paralyzed side of the body are decidedly more frequent with lesions of the right than with those of the left side of the brain. Thus Brown-Séquard has found that rather more than two-thirds of the recorded cases of bed-sore or acute sloughing in cases of hemiplegia have occurred where the paralysis of the limbs has been on the left side. The same authority believes there is also a greater frequency of those hemorrhagic or inflammatory conditions of the lung which appear to be dependent upon the brain disease, where the lesion exists in the right than when it occurs in the left hemisphere. Dr. Hughlings Jackson, moreover, considers that double optic neuritis is more frequently associated with disease of the right than with disease of the left hemisphere.

Callender and Brown-Séquard have also adduced valuable evidence tending to show that convulsions and tonic spasms of the limbs are very much more frequently met with in association with paralyzing lesions in the right than with others in the left hemisphere. And similarly Brown-Séquard has found that the peculiar spasmodic affection, described under the head of "Conjugated Deviation of the Eyes," occurred in about two-thirds of the recorded cases in association with lesions in the right hemisphere.

According to Brown-Séquard, it also appears from a careful analysis of recorded cases that the various forms of hysterical paralysis are far more frequent in the left than in the right limbs. Having analyzed 121 cases recorded by different observers, he found that limbs on the left side of the body were paralyzed in 97 instances, whilst the right limbs were only affected in 24 cases.

Lastly, it seems that lesions of the right are much more apt than lesions of the left hemisphere to give rise to a paralysis or to convulsions involving the limbs and face on the same side as the brain lesion. I have not hitherto referred to the existence of these anomalous cases, but in the face of records given to us by very competent observers, it cannot be denied that they do occasionally occur. And now it further appears that such anomalous cases are more apt to be met with in association with lesions in the right than with lesions in the left half of the brain. At present I give this to you as a mere empirical fact. The occurrence of paralysis or of convulsion on the same side as the brain lesion is at present quite inexplicable; still more mysterious, therefore, is it when we find one hemisphere more apt than the other to produce such an anomaly. In reference to this subject generally, it must not be forgotten that the fibres in the outer part of the anterior pyramids of the medulla do not decussate—they descend in the anterior columns of the cord on the same side, and concerning their functions we know little or nothing positively. Again, is it not possible that vices in development may occasionally occur in the nervous system, to such an extent that the accustomed decussation of the motor tracts does not take place? It seems worth while to entertain the possibility of this, more especially as it appears that in some of the lower animals a decussation of the motor tracts in the medulla is habitually absent.

The Nutrition of Animal Tissues.

In a pamphlet giving an account of an experimental inquiry into the nutrition of animal tissues, reviewed in the London *Medical Record*, Sept. 7, 1874, Dr. **Marcet** arrives at the following conclusions: 1. The physical constitution of a muscle resembles that of a jelly. 2. In all tissues there are three classes of substances: (*a*) those forming the ripe tissue, which are insoluble in water; (*b*) those constituting the nutritive material, soluable in water, and colloid; (*c*) the effete products, soluble in water, crystalloid and diffusible. 3. The nutritive material and ripe tissue have the same chemical composition. The mature tissue is merely the nutritive material in an organized form, the change from one to the other being purely morphological. 4. In muscle, the whole of the phosphoric acid is eliminated in the form either of a neutral tribasic phosphate or a pyrophosphate of potash. At the same time, some phosphoric acid and potash are present in flesh which are not in the proportion of a phosphate, and take part exclusively in the formation of ripe tissue. 5. The albuminous constitutents of muscle appear to be eliminated, as kreatine, kreatinine, and other crystalloid substances. 6. Muscular tissue takes from the blood more potash than it requires for its formation, the excess being necessary to the elimination of phosphoric acid by converting it into a crystalloid phosphate. 7. The nutrition of lung-tissue appears to differ from that of muscles by being much more rapid, for it contains a much larger proportion of nutritive substance, and much less waste than muscular tissue. 8. Potash is eliminated from the lungs in great measure as crystalloid carbonate, instead of in the form of phosphate, as it is in muscles. This is due to the carbonic acid in the lungs. 9. The proportion of phosphoric acid and potash is different in wheaten flour, potato and rice, but the proportion of total to colloid phosphoric acid and potash is very nearly the same in each. 10. Muscles in phthisis differ from the normal in containing less nutritive material and mature tissue, rather more water, and a much higher proportion of chlorine and soda. 11. In phthisis, the waste of muscles occurs in the normal way, and the potash and phosphoric acid present in the effete products are in exactly the right proportion to form a pyrophosphate. 12. The emaciation in phthisis appears due mainly to the blood not being in the proper condition to supply nutritive material to muscular tissue. The damp or wet state peculiar to muscles after death from phthisis appears to show that their colloid state is somewhat deficient in that disease. 13. The tubercular or adenoid formation in pulmonary tissue actually undergoes nutrition, and is consequently a growth, the phosphoric acid of potash being apparently eliminated, as in the case of muscle, under the form of a crystalloid phosphate. The nutrition of the abnormal growth accounts for the almost invariable absence of any smell of decomposition when a *post mortem* examination is made shortly after death from phthisis. 14. The softening of tubercular substance appears due to a loss of colloid power. It can hardly be due to an increase in the proportion of water, as softening tubercle contains very little more water than healthy lung. 15. There appears to be no increase of fat in tubercle, the mean being 2.14 per cent. in healthy, and 1.95 in diseased lung-tissue. The diseased lungs, however, contain more water, and the proportion of fat in their dried residue is slightly greater than in the dried residue of healthy lungs. 16. In nature, soluble matter is undergoing perpetual transformation, passing in rotation from the crystalloid to the colloid, and again from the colloid to the crystalloid condition. Chloride of sodium alone appears to be an exception to this rule.

On Basement Membranes and their Relations.

We extract the following from a lecture by Dr. P. **Redfern**, Professor of Anatomy in Queens College, Belfast, published in the *British Medical Journal* for August 29, 1874:—

The question is, how far basement-membranes limit the distribution of vessels and nerves, and separate them from the cells of glands and membranes. Mr. Bowman, in his admirable researches into the anatomy of the organ of sense, discovered that the filaments of the nerves of smell have a remarkable structure; that they are nucleated, finely granular, contain and resemble the gelatinous nerve-fibre. The epithelial surface, too, of the olfactory region, Mr. Bowman described as differing greatly from that of the adjacent parts of the nasal mucous membrane, and as being of a dark sepia tint. Subsequent examinations by Hoyer, Max Schultze, and Lockhart Clarke, confirmed these statements; and those of Schultze demonstrated that the cells are of two kinds—one elongated and filled with yellowish granular protoplasm, exposed at the outer end of each cell, and containing a clear oval nucleus in clear protoplasm in its deeper part, which is first attenuated, and then extended into a broad flattened process apparently connected with the connective tissue; the other cell—the proper olfactory cell—a thin rod-like body, is moniliform or varicose, connected below with the outrunners of a nerve-cell and in birds and amphibia, furnished with one or more hair-like processes, which at the free end come directly in contact with odorous particles. Exner, in 1872, denied the distinctness of these two forms of cells, stating that these are all intermediate forms, and that both forms are connected with a deep network continuous with filaments of the olfactory nerves.

But Dr. **Newell Martin**, in a paper published in the November number of the *Journal of Anatomy and Physiology*, maintains that the two kinds of cell are distinct, though their characters approximate very closely in the instance of the frog. He inclines to the belief that, as both forms of cell are distinct from ordinary epithelium, they are all olfactory cells. The only conclusion which can be drawn from these observations is, that in this situation the olfactory nerves divide into myriads of small finger-like processes, which, exposed at the free surface of the membrane are actually engaged in feeling at the odorous particles to inform us of their characters. This single instance, so thoroughly proved, would be sufficient to destroy our former ideas that nerves are spread out under basement-membranes, and never penetrate an epithelial layer.

But this is not the only case of the kind. The general relations of the gustatory nerves to the epithelial cells of the tongue have been described by Axel Key as similar in the fungiform papillæ of the frog, and by Schwalbe and Lovèn in the gustatory cells of the circumvallate and of some of the fungiform papillæ in men and animals. On the protected side of the circumvallate papillæ, a peculiarity in the shape and arrangement of epithelial cells produces a series of taste-cones, the central cells of which are furnished with hair-like prolongations similar to those of the olfactory cells. In the otolith sacs and ampullæ of the semi-circular canals of the ear, the nerve filaments, having lost their white substance, become connected with peculiar auditory cells, and end in hair-like processes between the epithelial cells. In the cochlea, too, notwithstanding the complication of the examination produced by the rods of Corti, there is reason to believe that the cells supporting hairs which project beyond the epithelial surface are connected with the primitive nerve-fibrils of the plexus below.

Of the recorded instances in which nerves pass through basement-membranes to come into direct contact or continuity with the superjacent epithelial cells, none is so striking as that of the salivary and other glands, if there be the least ground for the remarkably detailed observations and suggestions of Pflüger. They are of so much importance and interest in connection with the whole process of secretion, that I offer no excuse for directing your attention to them, even though it may be proved that the act of secretion is not attended with such marvelous and extensive changes of structure as Pflüger supposes.

Up to a certain point his observations may be easily and abundantly confirmed; beyond that, there is much greater difficulty; but this meeting offers one of the most favorable opportunities for extending our knowledge, by bringing different observers into easy communication with each other, and enabling each to help the rest by stating the means by which he had overcome what seemed at first to be insuperable difficulties in the progress of an investigation.

Pflüger calls attention to the very variable character of the alveoli, the secreting cells, and the excretory ducts of the salivary glands. These parts, which are believed to have very determinative sizes and characters, he declares to differ very greatly in different parts of the same gland. The alveoli, occupied by what we understand as secreting or glandular epithelial cells and the excretory ducts, lined by columnar epithelium, he thinks he can prove to be but different stages of development of the same structure, produced on the ends of the myriad nervous filaments supplied to these glands. On this view, glandular epithelial cells must be regarded as special organs of termination of nerve-fibrils. Like the auditory organs, touch-corpuscles, olfactory cells, muscular fibre-cells, and the like, the relation between such structures and the nerves becomes so close that it may be difficult, perhaps impossible, to define their respective limits. Pflüger has figured the nuclei of the cells of the alveoli of the salivary glands, the salivary cells, connected with a delicate fibre, which, after piercing the surface of the cell, is in contact with the *membrana propria*, and gives the cells the appearance of being stalked.

The appearance has also been seen by Schlüter, Otto Weber, Gianuzzi, Boll, and Kölliker, and indeed the appearance which Pflüger has figured may be seen by any-one who will take the trouble to examine the salivary glands of the common cock-roach (*Blatta orientalis*). The process was shown to me by my friend and pupil Mr. Charles Workman, and I have several preparations which show a similar process to that which Pflüger has observed and figured; but that it is as clearly connected with the nucleus of the cell as he describes it, I am not prepared to affirm. Pflüger says it is hollow, and often discharges a large quantity of tenacious material, which clearly proceeds from the nucleus. In the interior of the gland there are ducts lined with a thick but single layer of columnar epithelium, the cells of which are clear and nucleated near their free end, but furnished with a large number of extremely fine varicose hairs at the end connected with the *membrana propria.*

This epithelium becomes thicker as the ducts proceed towards their connection with the alveoli, and as transparent drops can be seen transuding from the ends of cells when the saliva has been made to flow by irritation of the gland, Pflüger concludes that they are important secretory organs. Such ducts frequently form loops, or bend suddenly, or possess diverticula. The epithelium of the ducts which carry the secretion out of the gland is of a different and apparently less important kind. Pflüger directs special attention to the great number of nerves connected with the alveoli. He has identified them in fresh specimens by their investments here and there by an ordinary double contoured medulla, by their being blackened by perosmic acid, by their varicosities, and by tracing them to larger and more easily recognizable nerves. He finds them branching in great numbers amongst the cells of the alveoli, and traces their fibrils to the nuclei of the cells. Some, after they have been connected with multipolar ganglion-cells or nerves, covered by medulla and sheath, and containing numerous varicose axis-cylinders, branch, enlarge, and become covered with nuclei, forming what Pflüger calls a protoplasmic foot, and supposes to be a structure intermediate in character between nervous and glandular tissue, and on the surface of the ducts lined by columnar epithelium. A nerve divides a pencil-like tuft of varicose fibrils, each of which, Pflüger says, is directly continuous with one of the processes of a columnar epithelium cell. I have frequently seen the pencil-like tuft of varicose fibrils on the surface of ducts lined by columnar epithelium, but it is not so easy to be sure that the fibrils are connected with the processes of the cells.

However, the statement is made in the most positive way by Pflüger, who has made these glands the subject of very special and lengthened investigations; and his drawings afford very strong corroborative testimony of the value of his statements. Moreover, in independent observation on the pancreas, he has also traced the nerves to endings in the secreting cells. But Pflüger has gone greatly further than this. He has figured the hair-like processes at the attached end of the columnar cells in all stages of transition into salivary cells of new alveoli; and, having previously found the nerves connected by varicose fibres with protoplasmic masses set with nuclei, he concludes that it is possible that the salivary cells are developed on the ends of the nerves without the interference of their own nuclei; and that as a continual new formation of alveoli and salivary cells implies the atrophy and disintegration of corresponding older parts, the alveoli, with pale off-shoots of various forms, which he has seen in moles, are evidence of such atrophy.

With these numerous instances, in which nerves are obliged to pass through membranes, to be connected with the cells on their surfaces, as if these were their special modes of termination, we might well be content until there is time for further investigation by independent observers. But there are yet other instances. Langerhans described, in 1868, a fine network of fibres in the skin, from the superficial part of which fine non-nodulated fibres pass out of the cutis, and end in the Malpighian layer of the epidermis. He saw in the epidermis also well-marked cells, which gave off several processes towards the horny layer, and one long slender process which passed through the Malpighian layer into the cutis. He considered these cells to be nervous, and their peripheral processes to be the terminal part of the nerves of the skin.

C. J. Eberth agrees in the main with Langerhans, and recognizes fine nerve-fibres passing from the nerves of the cutis into the deeper layer of cuticular cells, and also star- and spindle-shaped cells in the cuticle, which, he suggests, may be nervous structures, though he has not traced them in connection with nerve-fibres. On the surface of young fishes and naked amphibia, F. E. Schultze has discerned nerve-hairs arranged in the form of tufts or brushes, very much as is the case in the organ of hearing. In this instance, the brush-like endings of the nerves are probably connected with touch.

Cohnheim has described the corneal nerves as forming a superficial plexus under the anterior elastic lamina; from these, perforating branches pass perpendicularly through the lamina, and then under the epithelium, and break up into brush-like or star-shaped finer branches, which form a plexus, giving off fine nerves at tolerably regular intervals, between the deep columnar cells and the more superficial spheroidal ones, and dividing at length into their finest branches, which end by somewhat swollen extremities in the most superficial epithelial layers. Thus the exquisite sensibility of the front of the eye, like that of the olfactory or the gustatory mucous membrane, may be accounted for.

III. PATHOLOGY.

Acute Hepatic Atrophy from Alcoholism.

At a meeting of the New York Pathological Society, reported in the New York *Medical Record*, October 15:—

Dr. J. Messenger presented a specimen of acute atrophy of the liver, taken from a man aged forty-three. The patient was as good a specimen of perfect health as he ever saw, until, by continuous and protracted drinking of large quantities of brandy, he had finally produced serious trouble with his liver. The first thing that attracted notice was the distention of his abdomen, and a slight jaundice, which however deepened into an almost bronzed appearance of the whole body. Increased temperature was made with the aid of an axillary thermometer, but at no time was the heat above 102°. The pulse was weak and frequent. Insatiable thirst was a prominent feature in the case. Highly colored and scanty urine, with very large quantities of deep yellow-colored urates. The urine had a specific gravity of 1030, smelled badly, and stained whatever white fabric it came in contact with a deep yellow color. The skin was dry and harsh, and rough to the touch. A peculiar heat was also felt when the hand of a healthy individual was brought in contact with it. The tongue was very dry and rough, like that of a patient suffering from typhoid fever of a severe type. The dejections from the bowels were of light clay-color, floated lightly upon water, and were almost odorless for a while. Physical examination showed that the liver extended about four inches below its normal level; was very tender and smooth. Abdominal distention was very marked. Palpitation and succussion indicated a collection of fluid.

Acute disease of the liver was diagnosed by Prof. A. Clark, Drs. J. J. Crane, Vosburg, and E. H. M. Sell. After using all the means, which are too numerous to mention here, tapping was resorted to eight successive times, and about twenty gallons of liquid, very albuminous yellow, were drawn off. From twenty-one quarts down to three at each séance were drawn off at different times. Vegetable diuretics seemed to have more effect in relieving him than any or all others. Under the influence of them *all* of the afore-mentioned symptoms were greatly mitigated. The urine become more copious, the jaundice disappeared, the dejections from the bowels became, to appearance, quite healthy-looking, the appetite and digestion became natural also. Notwithstanding all this, the patient became more and more enfeebled, and after a severe sickness of about eight or nine months, death came to his relief.

But a limited examination (*post mortem*) was allowed us. The peritoneal investments of the parietal wall and viscera of the abdomen were nearly all adherent, and in some places could not be separated. They were torn through to get at the liver, which was found very much diseased, nothing having undergone any very great amount of diminution from the size, as is generally laid down in the books. A fibrous tissue had taken the place of the ordinary hepatic lobules and cells. But a small portion of the healthy structure of the liver remained.

The Pathology of the Blood.

The *Lancet*, October 31, 1874, says:

M. Laptschinsky, of St. Petersburg, contributes a paper to the *Centralblatt* on the microscopic changes undergone by the blood in various diseases. He finds that in various diseases in which marked febrile symptoms are present, the microscopic aspect of the blood is essentially different from that of health. The changes consist in the blood corpuscles not running into regularly formed rouleaux, but accumulating in heaps or clumps of various size and shape. The individual blood-corpuscles frequently appear swollen and cloudy, and their contours less distinct than natural. Small corpuscles, one-third of the normal size, are often met with, some of which exhibit a more intense color than natural, whilst others are completely pale. In the interspaces of the clumps of red corpuscles, great numbers of white corpuscles may be seen, often coalescing to form groups of from 3 to 8. In typhus he counted from 60 to 80, and more, in one field of vision; in cholera from 110 to 130. Careful enumeration of the relative numbers of white and red corpuscles four days after death in the above cases showed that there was 1 white to 60 red corpuscles in the case of typhus, and 1 white to 23 colored in the case of cholera. In a very anæmic woman, suffering from suppuration in the knee-joint, the proportion of the white rose to 1 to 13 red. The white corpuscles in these cases presented unusually active and extensive amœboid movements. The nuclei of the colorless corpuscles took a part in the amœboid movements, and could be seen altering their position and form in the interior of the white corpuscles. The thorn-apple or horse chestnut-like form of the red corpuscles he did not find to be unusually frequent. He found, however, large quantities of granular or detritus-like material in the blood of febrile, but not much in the blood of cachectic and anæmic patients From his enumerations he feels satisfied that in febrile diseases, and in Bright's disease, the conversion or development of white corpuscles into red is either materially retarded or is entirely arrested.

The Theory of Inflammation.

The *Dublin Medical Journal*, Sept., 1874, quotes Dr. Schiff's views on this subject:—

Admitting the difficulty or impossibility of giving a perfectly satisfactory definition of inflammation, Schiff proposes the following:—"An alteration of nutrition produced by an irritant;" an irritant being "any agent which, applied to an irritable or excitable part, causes an augmentation of the physiological function of the latter."

The author then, after demonstrating that the circulation is only one element in nutrition, proceeds to show that the vascular phenomena, observed in parts experimentally irritated, have only a limited value in explanation of what occurs in inflammations as studied in the human subject; for in these we never observe the contraction of the vessels seen in the frog's foot under the microscope, but always vascular dilatation.

When an irritant is experimentally applied directly to a vascular tissue, there is, besides the general irritation of the tissue, a local irritation of the vessels, which, together with the irritation of the motor and sensitive nerves, may give rise to the varied contractions and dilatations of the vessels which have been noticed in experiments, but which are not seen in clinical inflammations. In non-vascular parts, such as the cornea, cartilage, &c., the author does not admit the possibility of true inflammation, unless the action of the irritant extends to the surrounding vessels. An irritation limited to the part causes merely "a perturbation of nutrition." In vascular tissues, besides this perturbation, there is a dilatation of the vessels which represents an increase of functional activity in them, and which gives rise to a swelling of the tissues, caused by effusion of albuminous or fibrinous fluid, or by suppuration—phenomena which are wanting in non-vascular parts.

With regard to the great question as to the origin of pus, the remarks of Professor Schiff are full of interest. He believes that all the pus cells are derived from the blood, and, to account for the enormously rapid production of these bodies, he assumes a proliferation of the endothelial cells of the vessels of the inflamed part, a catarrh of the internal coat, giving rise to a true suppuration in the blood before the pus appears in the extravascular parts. That mobile corpuscles are produced by proliferation of the cells of the irritated tissues, whether vascular or non-vascular, is admitted by the author, but he denies to these the properties of true pus, although he does not say on what grounds. We should like to have had more details on this matter, which is by far the most interesting part of the paper.

By observations with the manometer, Prof. Schiff has proved the existence of increased blood-pressure in the vessels of the inflamed parts, and to this he attributes the effusion of albuminous fluid which gives rise to the swelling.

He concludes, from a consideration of the whole subject, that no perfect definition of inflammation is possible, as the phenomena must vary greatly in different parts, according to the tissues found in each, and whose functions are exalted. Thus, in non-vascular parts, there is a nutritive irritation (parenchymatous inflammation of Virchow), and, if nerves be present, pain. In vascular parts, in addition, redness, from dilitation of the vessels; swelling, from increased albuminous exudation; endo-suppuration, giving rise to increased permeability of the vascular walls, emigration of cells, and the appearance of pus in the tissues.

Pathology of Enteric Fever.

The *Dublin Medical Journal*, September, 1874, quotes from the Reports of the Dublin Pathological Society, that Dr. LYONS exhibited a specimen of a fatal case of enteric fever. It was worthy of observation to what an extent that form of fever had replaced the disease, typhus fever, with which the members of that Society had all been so familiar. The records of the Society for the present winter showed that an unusual number of cases had already been presented before it. The case he now brought under their notice illustrated another point remarkably characteristic of the enteric fever of the present day—viz. the tendency, as Dr. Foot had already observed, to very protracted duration. Dr. Lyons said that he had now under his observation in the Hardwicke Hospital a case of enteric fever, which, he was happy to say, was nearly convalescent, but which on that day had reached its 135th day, having passed through all the enteric, thoracic, cerebral, and other complications incidental to that most protean form of fever. As an illustration of the protraction of the fever and death at a very late period, he might allude to the specimen in the jar on the table. It was taken from a patient who died on the forty-ninth day of enteric fever, and the specimen which he now laid before the Society, showing an extraordinary amount of deposit in the glands and patches of Peyer, was also an instance of death after a very protracted period. There was considerable difficulty in ascertaining with precision the duration of the disease, for the unfortunate man was kept at home for a period variously estimated from thirty to forty days while suffering under fever. The inception of enteric fever was often marked by obscure symptoms, and it was extremely difficult therefore to determine the exact commencement of the disease in many cases. So far as could be ascertained, this patient was lying between thirty and forty days at home before he was brought into hospital, and when he came in was in a low and prostrate condition, suffering considerably from diarrhœa, which, it was stated, had been a marked feature of the case during the period he lay at home. But, as often happened in these cases where there were large and copious evacuations going on for a considerable time, it was not very difficult to check the diarrhœa; and, after a few doses of the ordinary chalk-powder, the diarrhœa gave no further trouble, and for the last few days there was none whatever. He suffered from another complication, which hastened the fatal issue of the case, namely, an extensive condition of diphtheritic exudation in the fauces, the hard palate, and the tongue. He lay for the last three or four days in a tranquil condition, and the day before his death he actually expressed himself as feeling better. He was tolerably conscious, was not suffering, and stated himself to be rather better than usual. He died that night at twelve o'clock, and seemed to sink in a silent manner, without any new accession of remarkable symptoms. A *post-mortem* examination was made with great care by Mr. Lamprey, who was then acting as Dr. Lyons' clinical clerk. There were symptoms of extreme intumescence and deposit in Peyer's patches and in the solitary glands, realizing what the French called *dothie-enterite*, or pimple-like intestine. It was further to be remarked that this patient's intestines appeared literally to have abounded in patches of Peyer These were rarely found so large, and to such an extent so high up in the intestines, as they were found here—reaching into the jejunum these patches of Peyer were found. In a long experience both at home and abroad, Dr. Lyons stated he had hardly ever seen an instance of this disease progressing to such an extreme extent. All through the intestines, several feet in length, these patches were found. As they were all aware, the patches of Peyer were more ordinarily confined to the lower 20 inches of the small intestine. However, cases were found where they were seen as high as the duodenum, but although they were not found so high in the present case, they could be traced to a high position in the jejunum, and the solitary glands could be traced still higher in that portion of the intestine. In this case several conditions at different stages of morbid process were presented concurrently. In the lower portion of the intestine the deposit seemed to have undergone but little process of removal. The glands were unbroken, and in the recent condition they were found to the extent of one quarter of an inch above the level of the mucous membrane, whereas in another part the process of elimination by ulceration had advanced to a considerable extent. For instance, they could see one patch with its circumvallated mass of deposit, the centre eaten away to the extent of one-eighth of an inch in depth, and the slough of the typhoid matter almost detached. Passing down they found a great patch on the iliac aspect of the ileo-cæcal valve, which had thrown off a large amount of typhoid matter. If they passed into the large intestines they found evidence of the existence of a similar, if not of a precisely identical, disease in the solitary glands. At the greatest prominence of the cæcum an ulcerated patch about the size of a shilling was observed. A large amount of deposit was thrown out above the surface, and a considerable amount of burrowing had taken place. This might be considered an example of a rare occurrence, which was occasionally recorded in connexion with the large intestine. It was stated that patches of Peyer were seen in the large intestine. He (Dr. Lyons) had not seen any true patch of Peyer in that situation, but an aggregate of glands was occasionally found. This patch to which he now called their attention looked as nearly a pseudo-patch of Peyer as anything he had ever seen.

Waxy Degeneration of Muscle.

The following is from the Report on Pathology and Pathological Anatomy, by R. H, Fitz, M. D , in the Boston *Medical and Surgical Journal*, October 15, 1874 :—

Dr. Weihl (*Virchow's Archiv*, 1874, p, 253) gives the results of a series of observations concerning this condition, first mentioned by Bowman in 1841.

The term was applied by Zenker, in 1864, to that condition of striated muscular fibre where the contents of the primitive fibril are converted into homogeneous masses of varying form and size, possessing a dull, waxy lustre. These masses are quite brittle, and do not essentially differ, chemically, from the contents of normal muscular fibre. He regarded this change as a nutritive disturbance, produced by fever, and due to the rapid reception of new material by the contractile substance. It was observed in typhoid and scarlet fevers, acute miliary tuberculosis, cerebro-spinal meningitis, articular rheumatism, tetanus, &c.; also in the arms of an insane person who had been confined in the straight-jacket. Other observations, before and since, show that this condition has been seen in almost all febrile diseases, in cases of injury, and in the vicinity of morbid growths.

Its origin has been regarded by some as purely mechanical; others considered that the process consisted in a coagulation of the myosine, with subsequent contraction. The change has also been viewed as merely a *post-mortem* one. Cohnheim, however, found it in the tongue of the live frog twenty-four hours after the local supply of blood had been cut off, and quite independent of any direct mechanical violence.

In Weihl's experiments, the frog was used, and it was ascertained that changes resembling, and probably identical with, those of "waxy degeneration" could be produced in the tongue of the live frog in various ways. Since they could be produced voluntarily and immediately, it seemed evident to him that they could not be regarded as a degeneration or as an inflammation. He further considered them as probably due to a coagulation of the contractile substance of the muscle.

In this connection, the investigations of Popoff (*Centralblatt*, 1873, No. 44) are interesting. He observed the effect of polarized light on muscular fibre. The double refracting substance of the muscular fibre was not altered by the "waxy degeneration." He concludes that this change in infectious diseases is rather an appearance accompanying other signs of inflammation of the muscular fibre than an actual process of degeneration.

Fibroid Degeneration of the Heart.

The *Dublin Medical Journal*, September, 1874, states that at a meeting of the Pathological Society of Dublin, Dr. HAYDEN exhibited a form of disease of the heart which was exceedingly rare—namely, fibroid transformation of the walls and of the papillary muscles. By a happy coincidence he had the opportunity of exhibiting three specimens of this form of disease, and what was further to be remarked, these specimens represented progressively three successive stages of the disease. One case was under his own care, and was perfectly observed. Another was under the care of his colleague, Dr. Nixon, who kindly gave him an opportunity of examining the patient during life, and the third was obtained from a subject in the dissecting room, and there was, consequently, no history connected with it. The first case was that of a woman aged thirty-nine, who had reared a large family. She was admitted on the 7th of January last under his care. She had been a year previously under his care for bronchitis supervening on pulmonary emphysema. At that time there were no symptoms or signs referable to the heart, with the single exception of evidence of engorgement of the right chambers, so common in these cases. After three weeks she went down to the country comparatively well, but he learned that during the interval between that time and her return to the hospital she had had repeated attacks of bronchitis, attended with extreme dyspnœa. When admitted in January last she was extremely livid, particularly the features; the lower extremities were œdematous; there was no pulse at the wrist; the urine, which was passed in small quantities, was of a high specific gravity, and contained albumen in small quantity. The heart pulsated as usual behind the ensiform cartilage; there was audible here a very distinct murmur associated with the first sound. A murmur was likewise audible about an inch and a-half to the left of the middle line. For three days subsequently the murmur, which was first of a soft and blowing quality, assumed a musical character, and then the preceding character was resumed. For two days, at a later period, it ceased to be audible altogether, and then was again heard, and continued until her death, on the 13th of February. During the whole of this period she was literally moribund, had scarcely any pulse, scarcely got any sleep, and was obliged to sit up the whole time struggling for breath. The diagnosis was attended with some difficulty. It lay between mitral regurgitation and tricuspid regurgitation. The latter was exceedingly rare; at least, in the sense of being satisfactorily identified. The displacement of the heart to the right side by the emphysematous left lung rendered diagnosis based on the point of greatest intensity of the murmur unavailable here; nevertheless he came to the conclusion, with diffidence however, that it was a tricuspid murmur, and that the musical character of the note, which was heard for three days, was, probably, due to the entanglement of a flake of fibrin in the valve. There were eight ounces of serum found in the pericardium. The left lung was exceedingly emphysematous. The heart was somewhat enlarged; it was fatty on the surface, and presented the milk spot so usual in such cases. In the recent state the right ventricle was permanently dilated, and the papillary muscles, especially at the attachment to the walls of the heart, were rigid. A microscopic examination of the inner stratum of the muscular fibres showed considerable hypertrophy of the connective tissue.

The tricuspid orifice was greatly dilated, and in the recent state was permanently so, as was the case with the ventricle. The left ventricle presented nothing worthy of special notice, with the single exception, that the mitral valve was opaque, but quite pliant, and at the same time capable of closing the orifice. This might be supposed to furnish an explanation of the murmur. Oppolzer held that a valve of this kind might give rise to a murmur owing to the modified vibration which it yielded; but he (Dr. Hayden) could not accept that as an adequate explanation. This specimen, then, presented the first stage of the disease known as fibroid transformation. The second heart had already been laid before the Society by his colleague, Dr. Nixon, and he would not, therefore, dwell on the particulars of the case. It illustrated the second stage of the disease. The subject was a woman aged sixty-five, who had been suffering from capillary bronchitis and emphysema. There was great respiratory distress, and general venous engorgement. A murmur of regurgitation existed both at the mitral and the tricuspid orifices. The inner portion of the walls of both ventricles and both sets of papillary muscles were found to have undergone fibrous transformation, and in the left ventricle one of the latter was greatly attenuated, and bi-ventral. Inadequacy of the valves was due to the changes which the ventricular walls and the papillary muscles had undergone.

The third specimen was a still better example of the disease, but he was unable to give any details, as it was taken from the body of a man brought in for dissection, who, judging from his appearance, was about fifty years of age. The mitral orifice was greatly contracted; the left papillary muscles and tendinous chords were eminently rigid. The muscular structure of the wall of the left ventricle was in an advanced stage of fibroid conversion. The outer stratum seemed to be scarcely affected, but it was distinctly perceptible on the inner surface. On section large and distinct islets of white and firm fibrous structure, extending continuously outwards from the parietal attachment of the papillary muscles, were seen dispersed through the walls of the heart. Under the microscope the structure exhibited the usual histological features of white fibrous tissue, with the addition of large oval corpuscles, Dr. Ormerod has called attention to a still more advanced form of this disease, where the heart presented the appearance and the condition of a leather bottle, was permanently dilated, and so rigid that when struck it would sound like a piece of wood. The doctrine generally received as to this form of disease was that it was the result of inflammation commencing in the sub-epicardial or sub-endocardial tissue, traveling into the heart, causing hypertrophy in the first instance, and then thinning and rigidity of the walls, and leading, when localized, to aneurism of the heart. The first specimen he had exhibited could not be explained in that way, for there was no evidence of antecedent inflammation. He thought, therefore, it afforded an example of what Sir William Jenner described as partial fibroid transformation of the heart from persistent congestive irritation of its walls.

The existence of a murmur, identified during life in the two first-mentioned cases, was interesting. It was due to the inability of the right ventricle to contract, owing to the rigidity of the muscular walls and papillary muscles.

Histology of "the Line of Demarcation."

This subject is touched upon in the *Medical Times and Gazette*, September 19, 1874:

The "line of demarcation" in a gangrenous limb, and the "separation of a sequestrum" in a necrosed bone, have been subjects of investigation to surgical pathologists for many a year. John Hunter himself almost completed the account of the separation of a piece of dead bone when he described the gradual deepening of the groove between it and the healthy portion, the presence of soft vascular tissue in the line of separation, and the existence of small circular hollows upon the exfoliated surface of the sequestrum, which exactly fit the granulations on the living bone. Quite recently the exact histology of this vascular layer, and of these "small circular hollows," has been investigated; and if we have not even yet been informed how absorption of bone is actually effected, we have at least been made acquainted with various steps in the process. Kölliker has been one of the principal contributors to this investigation, and his researches have been worthily followed up by Dr. Alex. Morison, of Edinburgh, who studied under him (*Pamphlet*, 1873). Kölliker showed that absorption in the normal course of the development of bone produces small cavities, and that these are filled, without exception, with giant-cells, or myeloplaques—with one, a portion of one, or several. He believed that these giant-cells arise from osteoblasts (the cells from which bone-tissue is developed), and that they are the agents by which bone (and tooth) are normally absorbed. Morison's investigations go to support this description and opinion. He has seen intermediate forms between osteoblasts and giant-cells; but he is inclined to believe that the latter may also arise by the aggregation of the nuclei of embryonic connective tissue in the spaces in the edge of bone which is being absorbed. It is possible also that the giant-cells may grow by proliferation of the connective tissue in the wall of a capillary. Whatever their origin, the presence of these peculiar cells in the line of absorption of bone seems to be now fairly established, and the idea may be entertained that their functon is a destructive one. When separation is complete, they would appear to be succeeded by constructive or formative cells, which arise from embryonic connective tissue around them.

Sanguineous Cysts of the Dura Mater.

The London *Medical Record* states that at the meeting of the Society of Medical Science, in Lisbon, on May 9th, Dr. Barbosa showed a large cyst, situated on the inner surface of the dura mater. It extended over the left cerebral hemisphere, which it depressed considerably. It had a vertical diameter of 18.5 centimètres (about seven and a quarter inches) posteriorly, and of ten centimètres (nearly four inches) anteriorly; its transverse diameter was 4.5 centimètres behind, and three in front. Its capacity was 350 grammes (about twelve and a half ounces). Except in the region of the tumor, there was no change beyond considerable hyperæmia. The dura mater of the cranium, on being stripped off, did not present any change, and was of the same thickness as that on the right side.

The cyst appeared to be formed between two layers of the dura mater, which were separated by blood. But, on more careful examination, it was found that the outer wall of the cyst was formed of the dura mater, and the inner one of a newly formed very vascular fibrous membrane, almost as thick as the dura mater, and attached externally to the arachnoid. The cavity of the cyst was full of semi-fluid blood, of a chestnut or chocolate color, with some small dark-yellow clots. Microscopic examination showed that the cyst contained blood-corpuscles altered in form and granular; the coloring matter (hæmatine) forming irregular masses. No crystallised coloring matter or hæmatoidin was found.

The subject from which the specimen was taken was a man aged sixty, of sanguineous temperament and strong constitution, who had been admitted into hospita on March 9, and died thirty-eight days afterwards with symptoms of cerebral compression. The diagnosis before death was congestion of the brain. The patient walked to the hospital and was reported to have been ill about eight days. He was of intemperate habits. His answers to questions were incoherent, and his pulse was slow sixty in the minute.

Dr. Barbosa attributes the lesion to the abuse of alcoholic drinks, leading to hyperæmia of the meninges and hæmorrhagic pachymeningitis, to which the hæmatoma was due. He agreed with the opinion supported by Calmeil, and Cruveilhier, that hæmorrhagic cysts of the meninges are due to the formation of vascular false membranes within the dura mater, as the result of inflammation of the arachnoid, or of the cranial dura mater. Virchow interprets the formation of these hæmorrhagic cysts (meningeal or intermeningeal apoplexy), by supposing that the hæmorrhage is preceded by a chronic inflammation of the dura mater, which is frequently seen in mental disease leading to dementia. The inflammation leads to the false membrane within which successive layers may be deposited by repeated inflammatory attacks in the course of years. These false membranes become very vascular, and their blood-vessels are very thin-walled and fragile, and are consequently easily laccrated and pour out blood.

Pathology of Hydrophobia.

The London *Medical Record*, October 7, 1874, states that last winter in Vienna Dr. Benedikt studied the pathological changes in this disease, by making seven separate vertical sections through the hemispheres in dogs, and has observed such plain and striking pathological changes as could, he observes, only have been previously overlooked by reason of an imperfection of the methods of investigation.

In the first place there is noted an abnormal distension of the meningeal vessels, and the accumulation around them, and in the meshes of the pia mater, of inflammation corpuscles, together with a nucleolated exudation. This exudation is strongly refractive of light, is colorless, and under high magnifying powers is seen to consist of punctiform nuclear substance (granular disintegration). Striking changes are observed in the gray matter of the convolutions, and in various parts of the nervous centres. One of the coarser changes observed was the presence of numerous holes, or spaces, which, when magnified eighty or ninety diameters, were seen to be filled with the material which also refracted light. This mass, under the high powers of the microscope, consisted of a granular or nuclear substance, in which were single hyaloid and colorless corpuscles, of the size of a distended nucleus of a blood-corpuscle. Inflammatory corpuscles were to be seen in both these masses. In the larger spaces nerve-cells also were found. Dr. Benedikt further describes what he calls a peculiar condition of the hardened brain, especially in the finer sections. The slightest pressure forced out upon the surface shining masses, which under the microscope proved to be myelin (colloid?—*Rep.*). These masses were often found lying detached on the surface of the section, and presented a greenish lustre. The author states that he has seen the same in the spinal cord of a horse that had suffered from rheumatic tetanus, and that he had regarded it as a softening and chemical alteration of the substance of the spinal cord.

The signs of inflammation are not presented everywhere in the pia mater, but only in certain parts. The distribution of these in the grey matter and in the central white substance throws a new light, according to Dr. Benedikt, upon the nature of the "granular disintegration." [A diagram intended to illustrate this point is given.] From what he has noted, it is concluded that the pathological process in this disease consists in acute exudative inflammation, with hyaloid degeneration, which doubtless arises from the exudative infiltration of the connective tissue. It is characteristic with reference to these inflammatory products that the attack, in man at least, is ushered in with rigors. The hyperæmia and nuclear proliferation is concurrent with that form of diffused inflammation which Lockhart Clarke has designated as "granular disintegration," and so far, the author considers, the anatomical obscurity of this disease is dispelled. The morbid process, in man, is doubtless essentially the same. The usual *post mortem* appearance is congestion and softening, which may have no especial value except as following asphyxia.

Dr. Benedikt states that there are in literature only two trustworthy reports, viz., by Meynert, who found much the same appearances as the author. The spaces, or holes, are regarded by Meynert as being the result of the hardening of the brain-substance. In two other cases Meynert found hypertrophy of the connective tissue in the posterior columns, with molecular and amyloid degeneration.

Pathological Results of Pectous Changes in Colloidal Structures.

Dr. Benjamin W. Richardson, F. R. S., in a lecture reported in the *Medical Times and Gazette,* October 24, 1874, says:

THE TERM PECTOUS.

Under the term "pectous change," which now for the first time is introduced into pathological language, I wish to include, as under a generic term, a series of morbid phenomena, at first sight very different in character, but each a demonstration of a single process, occurring under differing conditions from the same cause.

The word pectous was originally employed by Graham to indicate a thickening of all colloidal or jelly-like substances. In one respect the word means the same as our old terms "sizy," "precipitation," "coagulation," "clotting," "rigor mortis." It is, however, much more comprehensive. It applies also to change taking place, not only in fluid, but in solid or semi-solid colloids, by which they lose their clearness and become dense and opaque. A solid translucent membrane, as the capsule of the lens, may thus undergo this change, or the semi-fluid crystalline lens itself, equally with albumen or the fibrine of the blood.

When I was carrying out my researches on the synthesis of cataract, published in Brown-Séquard's journal, several years ago, I had the pleasure of making a demonstration of the facts pertaining to that research to Professor Graham. On that occasion I learned from the discoverer himself, better than from his writings, the full meaning he attached to the word. He applied it to every change in colloidal substance where the colloid passes from the condition in which it exists in an active state to a thickened and less active state. The change need not convey necessarily any immediate idea of modification of volume or of weight, though such may follow, but it always indicates an immediate molecular modification by which the physical properties of the colloid are transformed, and this whether the colloid be alone or in combination; be a fluid, a semi-solid, a solid; a mass, as a lens; a flat sheet, as a serous membrane.

A simple illustration or two will make all clear. When an egg is boiled the albumen in the shell occupies the same space, and is of the same weight, before as after the process. The physical condition of the albumen has, nevertheless, changed—it has become pectous. But the fine membrane that surrounds the albumen has undergone change of physical property—it has become opaque and dense; it, too, has become pectous. If we take the eyeball removed from a dead animal immediately after death, and subject it to gentle heat, the pectous variation is seen in series progressing through the structures. The cornea is glazed, dimmed, and shrivelled; the aqueous humor yields pectoid flakes; the crystalline lens becomes purely white, opaque, dense; and the hyaloid membrane of the vitreous takes on whiteness and opacity. All these parts have passed into the pectous form of colloidal matter.

THE TERM COLLOID.

The colloidal structures in the animal body are, in fact, all the living parts. The blood during life is not a mere mixture of water and of substances suspended in the water, but a true colloidal liquid in the active state. In it, each performing active functions, are the colloid fibrine, the albumen, and a third colloid, which I find always separates from blood, like a pellicle of caseine, when that fluid is evaporated, and which will be seen in the specimen I send round. In the same fluid float the semi-colloid corpuscles, a mixture probably of crystalloid and colloidal substance.

Out of the blood there is spread, through the body, an infinite series of colloidal structures: The great sheet of cellular membrane or tissue; the membranes enveloping all the organic parts; the lenses; the cartilages; the muscles; the tendons; the organic part of the skeleton; the skin, and the mucous membrane.

In fluids yielded by glands, to which the name of secretion may be applied, there is evidence of a colloid. In some secretions this is in very minute quantity; in others, as in milk, it is very large. In these instances the separation of the colloid and its appearance in the secreted fluid is by a process of which, as yet, we have little knowledge.

Lastly, in the nervous matter there exists a colloidal fluid which I have, after many efforts, succeeded at length in obtaining in its active state; that is to say, before it has become pectous. A specimen of this fluid I will now send round. In so far as I am aware, no specimen of the same fluid derived from nervous matter has been obtained. I wait a moment, therefore, to speak upon it.

Experiment.—In some experiments conducted in 1867 on the effect of extreme cold on nervous function, and which formed part of one of my courses on experimental and practical medicine, I observed that the brain of an animal could be frozen, with the result, if the process were not carried too low down into the medulla, of simply suspending cerebral function, and causing deep naroctism. In birds this result was singularly striking. In some instances the birds thus rendered profoundly comatose were permitted to sleep into actual death, and the brain in the frozen, or as I may call it *glacial* state, was removed and allowed to thaw. In the process of thawing I noticed that the brain matter passed from the hard state, due to the cold, into a soft, and I had nearly said fluid, state, and then again into a firm state—like that in which we commonly find nervous structure at our post-mortem examinations. This same series of transitional phenomena I had observed in the processes of freezing and thawing blood. Blood if frozen the instant it is removed from the vessels may be so thawed that it will become fluid, and after the stage of fluidity will pass into the semi-solid condition called coagulation; in other words, it will become pectous. Hence, in watching the brain matter, as I have stated, I felt I was watching the same order of phenomena, with this difference: that the transitional stage in the brain matter seemed to me much shorter than in the blood; it was, in fact, so transient I was unable to obtain any fluid from it to enable the change to be observed in a separated specimen of fluid.

Experiment.—By another procedure I have, however, been able to study this subject in a better way. Instantly after a butcher has killed a sheep I get him to lay open the skull by one clean, sharp stroke, to take out the brain from its cavity, and drop it into a vessel containing ammoniated water. The ammonia suspends the pectous change, and, if the experiment succeed well, a fluid can be expressed which may become pectous while under observation. The fluid I sent round is of this nature; and here is another portion of the same fluid in which the pectous change has been induced. To succeed in this demonstration many trials may have to be made, for the brain may become instantly pectous from the vibration of the blow by which the cranium is opened. In oxen that have been felled by the poleaxe and pithed with the cane, the brain substance seems to me to be rendered immediately pectous throughout its whole mass. On the table there are two specimens of brain; in one specimen the pectous process is perfected, in the other it is suspended.

NATURE AND CAUSE OF PECTOUS CHANGE.

I have indicated already that by pectous change is meant a thickening and separation of colloidal substances from a state of solution. In the colloids with which we are concerned, the separation, whenever it takes place, is always from water—at least, as far as we yet know. We see colloidal matter, therefore, in two forms—(*a*) when it is in a soluble and active condition, as in liquid albumen; (*b*) when it is pectous, and is giving out water, as in clotting blood or in the formation of curd. For clearness' sake, I shall speak of these two states as—

The Aqueous state.
The Pectous state.

Experiment.—In studying these two states, nothing is more immediately striking than the small quantity of colloidal substance that is capable of rendering a mass of water semi-solid. I send round two specimens illustrative of this fact. In the specimen marked "fibrine" you see reduced the amount of colloid fibrine that once held one pound of blood in the active colloidal state. In the other specimen you see a small piece of firm horny-like matter marked "silicic acid." That small portion once made three gallons of water colloidal; and when it was first made pectous it rendered that volume of water of firm, jelly-like consistence. Now, although it is still shrinking and giving up water, it is reduced to such little volume that an ounce-bottle would hold it.

The cause of the pectous change is one of those problems which has most baffled the physiologist. In the study of it one fundamental error has prevailed, of this nature—that every condition which allows the phenomenon to take place has been set down as the cause of it. Thus the Greek physiologists, observing the phenomenon as it is seen in the coagulation of the blood, presumed that it was due to a process of cooling—a view still held by the vulgar, but long since overturned by Hewson, who proved that cold suspends the process altogether, while heat quickens it. Thus Hewson, seeing that fibrine tied up in a vein or an artery in the living animal does not coagulate, arrived at the conclusion that exposure to the air is the cause of the phenomenon. Thus Lancisi, seeing that in an aneurismal sac the fibrine is laid down in layers, owing to the slow motion of fluid through such a cavity, was led to teach that motion maintains fluidity and that rest is the cause of the precipitation. Thus John Hunter, noticing the disposition of the fibrine to coagulate out of the vessels, or within them when retained without motion, argued that coagulation is one of the effects of the life of the blood and is a vital operation. Thus Scudamore, following up Bauer's original research on the evolution of carbonic acid from blood, conceived such evolution to be the cause of the pectous phenomenon. Thus some later physiologists, observing that the admixture of fibrine with another fluid would produce the result, have considered such admixture as the cause;

omitting altogether the fact that the same will occur, under other conditions, without any such admixture. Thus, lastly,—for I need not weary you with examples—I myself, in my early days of experiment, having observed that ammonia added to blood holds the fibrine fluid, and that blood in the act of coagulating gives out ammonia, put two and two together, not unnaturally, and therewith came to the conclusion that the escape of ammonia is the natural cause of the pectous change. Had I but recalled the facts of the same phenomenon as they are seen when caseine of milk and other substances become pectous, I should have undoubtedly moved my hypothesis to the second position, and should have said, as I now say, that although ammonia, in a certain proportion, possesses the power, by its presence, of suspending the process, and although when the colloid is freed of the ammonia it will become pectous, the fact—very useful in its way to know—is not an explanation of the cause of the phenomenon.

The pectous change in the colloidal substances that are capable of existing in solution in water depends upon a disturbance between the water in which they are distributed and the solid matter of which they are composed.

The colloid exists, in fact, as I have already said, in two states—the aqueous, or active; the pectous, or passive. In the aqueous state the colloidal substance is saturated with water, for which it has no affinity. It is a substance, however, possessing a strong attraction of cohesion of its own particles, and although it may be distributed through water under certain fitting conditions which enforce combination, it is ready at any moment, by virtue of the self-attraction of its molecules, to separate from the water, to adhere molecularly, and to expel, when once the cohesion has commenced, from itself the water that previously held it in solution.

In the aqueous state the attraction of cohesion resident in the colloid is resisted by the water that is present; but the resistance, in all cases feeble, is in some examples, as in the fibrine of the blood, so slight that the merest disturbance suffices to break it, and allow the attraction of cohesion to commence. Give, then, the conditions for the liberation of the colloid, and the pectous change begins. The mind has only to rest on this simple and primary fact, and all the rest of the problem is clear. There is here a solution; in it is distributed a plastic matter, which is plastic by virtue of its molecular self-cohesive affinity, but the power of the affinity is resisted, and the colloid is held in temporary combination with water; remove the resistance, and the attraction will declare itself just as surely as will the attraction between the earth and any substance upon it, if the support which separated the substance from the earth be withdrawn.

At the same time, mere dilution with water, unless it be carried to an extreme that were incompatible with space, would not answer; and does not, for although the pectous process may be retarded by addition of water, it is not prevented.

The natural plan adopted is that the colloid while in the aqueous state is held in that state, either by condensation of water or by the diffusion through it, in a limited amount, of some substance which, after the manner of a salt, has the property of fixing and holding water. If this retaining or fixing body be removed on the one hand, or if on the other hand it be in such excess that on its own part it fixes too much water, the attraction of cohesion in the colloid begins, and therewith the pectous change; but if the saline be in such small quantity as only to fix the water through the colloid, the effect is to produce combination and to maintain the aqueous state of the colloidal matter. A simple experiment or two will suffice to illustrate this plain, yet at first sight paradoxical, fact.

Experiment.—There is in this glass blood in the fluid state. The colloidal fibrine is present in this blood, and is retained in the aqueous state by the addition to it of chloride of ammonium.

Experiment.—In this dyaliser there is a specimen of this same blood which originally was held fluid by the same salt; but after being thus treated it was floated upon a membrane on water. The salt, which was the bond of connection between the fibrine and the water, has diffused through the membrane into the water. The result is, the blood in the dyaliser is pectous; it forms a firm coagulum.

Experiment.—There is here another specimen of blood in which the fibrine has been retained fluid by the addition of nitrate of potassa. On this I perform an experiment originally devised by Gulliver. I add water. As I shake the water with the blood a change takes place: the added water distributes the combining salt, and at a given stage removes it so effectually that the particles of fibrine exert their power of attraction of cohesion, and the colloid becomes pectous. You will see it by the time it reaches you as a firm jelly.

Experiment.—I reverse this process. Into a specimen of the same blood, held fluid by the potassa salt, I drop an excess of potassa hydrate. This substance, from its affinity for water, will seize water so greedily that around it the fibrine will instantly assume the pectous condition.

In these experiments a soluble salt is employed, but it is not essential that it should have been such a salt. It might have been a fixed alkali, it might even have been some of the acids; the only requisite is that the substance should act on water after the manner of a soluble saline. If a volatile body greedy for water be employed, the effect of maintaining the colloid in the soluble or aqueous state is the same, in a more delicate degree; for in this case the suspending agent is volatile, and the colloid may be separated from the water, not only by the neutralization of the combining intermediate agent or the dilution of it in water, but by the mere escape of it in the gaseous condition.

Experiment.—Here is a solution of blood in which the fibrine is held aqueous by the mere addition of ammonia at the moment of the abstraction of the blood from the body. This blood, carefully sealed up, may remain fluid for years.

Experiment.—Here is another specimen of this same blood held fluid originally by ammonia. It has since been spread over a wide surface, and exposed freely to the air, so as to allow the ammonia to volatilize. The result is that with the escape of the combining link, which in this instance was volatile, the fibrine has separated from the water and become pectous.

But—and the facts I am about to relate make the demonstration still more perfect—the aqueous condition of a colloidal fluid in which the affinity between itself and water is held by a very slight bond of connection—as, for instance, in the fibrine of the blood—may be maintained by even simpler physical processes than the addition of a salt or analogous body.

Experiment.—I took blood fresh from the vessels of an animal, and enclosed it in a tube exposed to extreme cold, after the manner devised by Hunter. Before the pectous change in its fibrine was possible the blood was frozen. Now, the pectous state was suspended because the combining water, which would have escaped as vapor had the blood been drawn in an open warm air, remained suspended for an hour. The blood then was thawed; it became fluid; and from the fluid it passed into the pectous condition.

Experiment.—I tied up blood in a portion of vein in an animal just dead, and at once conveyed that vein under mercury, so as to subject the blood to a pressure of fourteen inches of mercury. Thus I left the vein for twenty hours; then I removed it, let out the contained blood in the aqueous form, and observed that thus liberated its fibrine became pectous in four minutes.

In this last instance the water was condensed and fixed by pressure alone. It is thus, I believe, in the living animal, that the purer colloid fibrine is held combined with the water in the blood; it is thus, I believe, that in the nervous matter the combination is sustained. But in these latter cases, as the pressure is much less than I put on in my experiment, the pectous change is far more readily developed.

Experiment.—Yet one more experiment completes this part of my subject. If through a colloidal solution I pass a feeble voltaic current, and so decompose the water, the colloid will assume the pectous form. Here is this proved. I have put into a cup a solution of albumen, and have passed through it a current from a small two-cell battery. With the slow decomposition of the water into its elementary gases, the colloid has been separated, as you will see, in the pectous form. As it is distributed in the tube in fine filaments, between which the liberated gases have infiltrated, it looks like a beautiful web of areolar tissue. The colloid separates at the positive pole.

The capability of a colloid to retain the aqueous state, in which alone it is active, and I may say vital, varies exceedingly in different forms of colloid. In fibrine the condition is so refined the merest accident may suffice to break the aqueous connexion and permit the molecular cohesive attraction. The escape of water in the form of vapor will suffice. A mechanical agitation, an electrical agitation, the agitation excited by heat—these all, even in a minor degree, will suffice to induce the same effect. The mere introduction of a nucleus or point round which the particles of the colloid may begin to adhere will lead to precisely the same event. The aqueous colloid of the nervous matter is equally, or even more sensitive.

In other colloids, the adhesion between the water and the colloid being closer, owing to the presence of a firmer combining link, influences more decisive are required to induce the pectous phenomenon. Albumen is an example of this form of colloidal matter.

In other colloid states the adhesion with the water may be so strongly cemented that the colloid may follow the action of water itself in becoming fluid by heat and solid by cold. Gelatine is an example of this condition of colloidal matter.

The rule is simple by which colloids in the aqueous form maintain the active form under ordinary conditions. A soluble substance acting after the manner of a salt sustains the fluidity. Hence a colloid becomes more and more inclined to assume the pectous change the more completely it is dialysed from crystalloidal matter, and the more purely it approaches the absolute colloidal character.

Experiment.—Dialysing Albumen.—Here, for example, is a solution of albumen That solution is in the perfect aqueous form, and is steadily held so by the presence in it of a combining body acting as a salt. There is a specimen of the same albumen, but it has been in a dialyser, dialysing with a weak solution of hydrochloric acid. The substance that held the colloid aqueous has thus been removed, and the result is that the albumen on the membrane is in the pectous arrangement of colloidal matter.

The same changes extend to all similar substances—to the globuline of the lens, to myosine of muscle, to a membrane.

The evidence of the cause of the assumption of the pectous form from the aqueous is thus, I think, perfect. There is no experimental break in the chain of evidence. From the process of instant change from vibration or contact in the purest colloids, to the slowest separation in the least pure, all the facts prove the truth of the proposition, and establish unity of design.

The physical character of the pectous change is as yet obscurely defined. We have in it a certain analogy to crystallization, but no distinctness of detail. That which we observe in the colloidal pectous body is that it is no longer fluent; that it contracts with extrusion of water; that it solidifies with loss of volume and loss of weight; and that in its final stage of solidity it presents what may be designated the amorphous form of matter. To what extent the extrusion of matter may be carried is shown by the fact that I once found two hundred grains of pectous fibrine reduced by it to six grains.

In all cases with the shrinking and thickening of the pectous colloid there is opacity and diminished elasticity. In membranes there is rapid dryness, and with that a linear puckering of any substances that may lie in contact with it. This is well illustrated in the cornea of the eye after death.

In the presence of oxygen and water the tendency of the colloid, in its pectous condition, is to pass into the crystalloidal form of matter by decomposition and rearrangement of the elementary parts around the basic carbon. In this manner all the structure may pass into a saline form, which will then fix water, be resolved in solution, and carried away.

In the animal body there is probably only one colloidal form of matter primitively. The evidence all points to this conclusion, and suggests that every apparent difference is due simply to a different mode of combination of the primary colloid with water. In what may be called the living structures of the body the water is all colloidal; and in the form of colloid exists all the matter in nature that is capable of assuming the organized motion which we denominate life. In the brain it is the colloidal matter that is impressed by external vibration and on which impressions are fixed. A condensed colloidal structure, the colloidal lens, is used for the refraction of the wave of light. In the muscle the motor mechanism is constructed of colloidal matter. The blood is a store of colloidal fluid. A membrane is not a mere supporter of organs, but is an active colloidal sheet possessing the property of allowing water and substances that fix water to pass through it, but to detain all that is like itself colloidal: in this way colloidal forms are constructed into organic textures.

But that the matter thus generally diffused may be susceptible of motion it must remain in the aqueous state. Whenever it is most vital it is most purely aqueous. In combination with saline or fatty matter it remains in some structures in a comparatively passive state. In the pectous form it is dead, and waits either to be resolved or digested into the aqueous condition, or under the influence of oxygen to be broken up, rearranged on a new elementary plan in the crystalloidal form, and conveyed with the water from the organism. Thus it exists in the sarcous element of muscle. It has served its purpose, and is ready to be resolved into the nitrogenous salt urea.

In a few instances the pectous condition of matter remains in the body, fulfilling a useful purpose even as dead matter. In the hair, in the nails, in the epidermis, it is present for such intention.

The Histology of the Morbid Brain.

We learn from the London *Medical Record*, October 21st, that Mr. MAJOR, in a continuation of his series of articles on the histology of the morbid brain, which is especially devoted to the consideration of the conditions presented by the cortical substance in cases known as senile atrophy, says that we know the great cause of disease and destruction in the nerve-cells to be a deficient or vitiated nutritive supply; that in senile atrophy we should expect to find the simplest forms of degenerative changes; that in judging of these changes an impediment is presented by the effects which must be exerted by age upon these parts; that, in a child of about eight months, the nerve-cells throughout the entire depths of the grey matter are found to be almost uniform of size, circular in form, and almost entirely destitute of branches; in the adult, these cells are arranged in numerous rows, and present various forms and intricate connections, while as years advance, and mental strength declines, corresponding alterations may be expected to be found. From a careful comparison of the cells, specially directed to ascertain the relative extent to which they suffer, he is led to think that, in the majority of cases of senile atrophy, it will be found that the large pyramidal cells which form a conspicuous band about midway in the depth of the cortical substance, are those in which degenerative changes are most constantly and distinctly marked. In the small round, or oval cells, structural changes are comparatively rare, though they must exist, as numbers of these cells completely disappear. The atrophic change is chiefly noticed in the frontal and parietal regions, where the large cells are most numerous. The cells at the extremity of the occipital lobe are less affected than in any other portion of the grey matter. The form of disorganization invariably present is the granular condition of the large cells. The first stage of this process is that these cells lose their sharply defined and more or less triangular appearance, and acquire a swollen and inflated aspect. The nucleus likewise becomes swollen, larger, and more or less oval. The nucleoli become very distinct, partly because the pigment of the cell is absent, and partly because the nucleoli readily absorb the staining solution. In the next stage a deposit of granules is observed, inside or outside, imparting a yellow or opaque appearance. Masses of these granules may either fill one-half the cell, or cause a bulging and deformity at a particular point. Gradually the interior of the cell is completely filled with yellow bodies, as if artificially colored; then the walls give way and shrink, leaving the nucleus and its nucleoli surrounded by granules. The holes observed in the grey matter are not seen in the healthy subject surrounding the cells as in atrophy. Thus the nucleus proves to be the most persistent part of the cell, surviving long after the latter has disappeared. The granules have been believed to be fatty in nature, but this view is not established. In the first or outer layer of the small nerve-cells, the change is rather that of shrivelling than of degeneration. He has not observed hypertrophy of the nerve-cells in atrophy, but has met with it in general paralysis of the insane, but does not doubt its existence in the former, though exceptional in both. Their branches, supposed to be increased in number, are, by him, regarded as enlargements of those normally present. The confusion in the rows of cells is believed to prove that certain of their number have disappeared. In advanced stages, granules are noticed scattered about in the grey substance which may have a different origin from that of the cell-*débris*.

Vessels.—Dilatation of both arterioles and capillaries is observed, similar to that in brain-wasting. Great caution is necessary in judging of such changes, as they may be owing to the preparative hardening process. There may be observed deposits of granules of a yellow color and highly refractive, and crystals of hæmatin on the walls of the smaller vessels. The former are found scattered under the sheath of the vessels, or are collected in masses there, while the hæmatin-crystals are more frequently seen at the angles formed by the bifurcation of the vessels. The perivascular canals in this, as in many other forms of brain-disease, are enlarged, and the surrounding cerebral substance is coarse and indurated.

Fibres.—Loss of the branches of the cell is one of the first stages in atrophy; but the fibres throughout the whole of the grey matter are greatly altered, or even broken up, and their course very twisted and irregular. In this, as in other forms of long-continued cerebral disease, they are decidedly coarser.

Neuroglia.—Wasting and atrophy are especially remarked. The fine and retiform aspect is lost, the disruption of structure presenting in the grey substance patches of molecules and nuclei. The nuclei are increased in number and assembled in groups, but without proliferation. In dealing with this almost new field of inquiry, in justice to Mr. Major, his conclusions are quoted in his own words:

"*A. Cells.*—1. In senile atrophy of the brain the nerve-cells throughout the entire depth of the cortical layer, and in all parts, are morbidly affected, although to a variable extent and in a different manner.

"2. In the large nerve-cells the morbid process in the great majority of cases is one of granular degeneration.

"3. In the smaller nerve-cells generally, and occasionally also, but rarely, in the large, the process is one of simple atrophy, without granular degeneration, properly so called.

"4. The nuclei of the cells invariably participate in the diseased condition, and become the seats of granular deposits which lead ultimately to their destruction.

"5. At an early period the branches of the large cells are usually atrophied and destroyed to a greater or lesser extent, but exceptionally are retained up to a late period in the degeneration process.

"6. The condition of so-called hypertrophy of the cells (Rutherford, Tuke) depends on a peculiar transformation of some of the large pyramidal bodies, and is not confined to senile atrophy, being also observed in general paralysis, but in both is of exceptional occurrence.

"*B. Vessels.*—1. A condition of dilatation, both in the small vessels and in the capillaries, is that most commonly observed.

"2. Corresponding with this, there is enlargement of vascular canals with induration of the surrounding cerebral substance.

"3. As a rule, no great proliferation of the nuclei of the vessels is observed, the morbid deposits consisting of yellowish granules and hæmatin crystals, and there is no remarkable change in their course and direction.

"*C. Fibres.*—1. The fibres generally are abnormally coarse and tortuous, and in some instances seem to be broken down at various points.

"*D. Neuroglia.*—1. The most prominent change in neuroglia is one of atrophy and degeneration, the substance, at first loose and imperfect, breaking down ultimately into molecular *débris.*

"2. The neuroglia-corpuscles are somewhat increased in number, and, while at first presenting their usual characters, become eventually shrivelled and atrophied."

Most wisely and cautiously Mr. Major introduces his paper by these warnings:

"1. It may, nay more, it will, be found that many of the appearances I shall describe as being present in senile atrophy may be demonstrated with equal certainty and distinctness in other forms of cerebral disease. 2. I was driven to the conclusion, in the present as in previous inquiries, that, while in all cases I was able to discover decided pathological changes, yet, so far as my experience had gone, in none could I put my finger on any one point and mark it out as being constant and distinctive of the affection to the exclusion of all others; and to a great extent, as regards the cortical substance, further experience has only tended to confirm and strengthen this conclusion." [These words are almost synonymous with those employed by the late Dr. Thomson Dickson. (*The Science and Practice of Medicine in Relation to Mind, etc.*) "It will be long before we can isolate any set of cells, and say from definite appearances, 'These are the cells of madness.'"] Lithographs illustrate the above described microscopical observations.

Rigor Mortis and its Causes.

The following case is reported in the *British Medical Journal*, October 17, 1874, by Dr. W. C. Grigg, M. D., Assistant Obstetric Physician to the Westminster Hospital.

The case appears to be not without interest in relation to the etiology of rigor mortis.

On the evening of August 16th, I was sent for by one of the midwives of Queen Charlotte's Lying-in Hospital to see a woman (a multipara) with placenta prævia. Labor began about 6 P. M. with a discharge, which continued with each pain. On the arrival of the mid-wife, the os was found about the size of a sixpence, but the presentation could not be distinctly determined. At 9.30, severe flooding set in, which lasted about half an hour. The os was now dilated to the size of a half-crown; across the anterior portion, a soft thick substance was felt. When I reached the woman, a little before eleven, the hæmorrhage had nearly ceased; the os was fully dilated, and the mass was clearly a portion of the placenta. As the membranes were intact, they were at once ruptured; and in a few minutes the child was born. The after-birth came easily away five minutes afterwards, and with it some clots, so firm, that they felt like pieces of flesh, requiring some force to break them down. There was slight *post partum* hæmorrhage. The child was quite livid; the arms were folded on the chest, and the thighs flexed on the abdomen. The jaw was firmly fixed; so was the head and the extremities. The abdominal walls were flaccid, but the back was partially set. It was with the greatest difficulty I could get my finger into the mouth; and, in order to extend the extremities, the body of the child had to be firmly held.

The woman stated she received a severe fright the previous evening, but believed she was at her full time. The movements of the fœtus were so troublesome that she slept little that night. It was last noticed at about 4 P. M., two hours before labour set in. The hæmorrhage was nothing to speak of until about 9.30, when it became very severe, but only lasted about half an hour. She was confined shortly after 11 P. M. When seen, she did not present the appearance of having lost much blood. No ergot had been given. I think it may be fairly presumed that death of the fœtus took place during the excessive loss of blood—*i. e.*, about an hour and a half before its birth. It has been my misfortune to have been present at the births of many still-born children, whose deaths had varied from minutes to days before birth, but I have never before seen a fœtus with rigor mortis at birth. It would be interesting to know if any other practitioners have met with a like case, and if so, what were the circumstances attending each case. Here the woman had received, on the previous evening, a severe shock; there were partial placenta prævia, severe flooding only for about thirty minutes, delivery in an hour afterwards, and the blood coagulating rapidly and very firmly.

The Pathology of Tubercle.

On this subject Dr. P. G. Robertson, remarks in the Missouri *Clinical Record*, October, 1874.

I am of opinion, that "*tubercular phthisis*" is a specific disease, and that there prevails a disposition or tendency to affection of a certain class of structures, the lymphatics, which undergo inflammation, hypertrophy, and degeneration, most generally those of the intestinal tract; that this tendency constitutes a constitutional vice, what we term a diathesis, and is a necessary factor, which, when combined with one or more external exciting causes, operates for the production of the disease we call tubercular phthisis; and, moreover that the deposit taking place in the lung is a *secondary affection* as the result of inoculation from the primary seats of morbid action located in some remote part or organ of the body.

We may regard "*tubercle*" simply as the *product* of a special diseased condition of a certain class of tissues, these undergoing overgrowth and degeneration, and secondarily infecting the blood by furnishing to the circulation material improper and insufficient for the proper nourishment of the various parts of the body. It possesses probably no specific poisonous property, yet each tubercular mass becomes as it were a new focus for the further propagation of disease.

The microscopic examination of tubercle shows its constituent elements to be in appearance very similar if not identical with pus and lymph corpuscles; between these the impossibility of drawing a distinction, based solely upon the microscopic character, is very generally admitted.

With this view of the genesis of tubercle and its mode of propagation, we must regard as dangerous to the health of those persons who possess the predisposition to consumption the existence of ulcerations or suppurating wounds upon any of the surfaces of the body, as they may possibly become the centres from which may radiate the vitiated material, which is sufficient, under the influence of the *predisposing element*, to produce a morbid action in the lymphoid or adenoid tissues ending in the degenerated state we call tubercle.

Pathology of Tubercle.

Dr. Howard in an article in the Canada *Medical Journal*, September, 1874, observes:

In view of the fact that histological examination cannot be relied upon, and that clinical evidence does not support the statement that either croupal or catarrhal pneumonia is apt to terminate in or constitute chronic phthisis, it may be concluded that Niemeyer was wrong in maintaining that chronic phthisis usually originates in inflammation of the lungs.

Admitting that ordinary lobar pneumonia sometimes ends in softening and ulceration of the lungs; that chronic bronchitis sometimes becomes complicated with induration, and that the indurated portions may slough or ulcerate; and that catarrhal pneumonia sometimes is followed by ulcerative destruction of the lungs, yet these issues are so infrequent relatively to the frequency of lobar pneumonia, chronic bronchitis and catarrhal pneumonia respectively, that they cannot reasonably be regarded otherwise than as *exceptional*, and not as the natural course of these affections.

The great fact which nearly all pathologists admit in some form, that a predisposition to pulmonary consumption, inherited or acquired, exists, and which has led to the disease being placed amongst the constitutional affections, seems to prove that there is something special and peculiar to the disease which distinguishes it from simple inflammation of the lungs, whether croupal or catarrhal.

Burdon-Sanderson, while applying the facts of animal inoculation to the pathology of consumption in man, admits this *latent phthisical* bias. Virchow and his followers, including Niemeyer, admit that the predisposition to the so called "caseous" or "scrofulous" pneumonia which the latter regards as the nature of most cases of chronic consumption, is "inherited" as "a vulnerable constitution."

It is this bias or a tendency in the individual that conditionates the peculiar characters and course of the hyperplastic or the inflammatory process, whichever it is, that produces consumption—and its recognition is equivalent to the admission that the so-called "caseous" or "scrofulous" pneumonia" of ordinary phthisis is peculiar and essentially different from pneumonia occurring in persons free from the inherited or acquired tendency in question. It is this inherited, or perhaps acquired, mode of vital action—this constitutional bias—that causes a bronchitis or a pneumonia to take on peculiarities which distinguish it from ordinary bronchitis or pneumonia. The bronchitis or pneumonia becomes the agency of developing the latent tendency in the individual.

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I have attempted to show that it has not been proved by an appeal either to histology or to clinical observation, that tubercle or consumption may be produced in the human subject by the absorption of caseous and other products of inflammation, as it appears capable of in rabbits and other animals. And I have also attempted to show that clinical observation is opposed to the doctrine that ordinary chronic pulmonary consumption consists of simple pneumonia, either croupal or catarrhal, and that if the local process is inflammatory it is at least of a peculiar or specific kind, and to be designated by a distinctive name such as "caseous," or "scrofulous," or "tuberculous." It has its own symptoms and signs, runs its own peculiar course, recognizes its own causes and pathology and demands its own therapeutics.

But it does not follow that we may neglect or treat as trivial a bronchitis, an intestinal catarrh, a chronic abscess, or a fistula. Nor do I wish to deny that inflammation plays an important rôle in consumption, infiltrating the pulmonary substance in the neighbourhood of the tuberculous disease with materials prone to degenerate, but simply to maintain that the great majority of cases of chronic phthisis are *not* cases of, and do *not originate* in either lobar or broncho-pneumonia.

PHYSICS, BOTANY, CHEMISTRY AND TOXICOLOGY.

I. PHYSICS.

The Maximum Temperature.

The *Journal of the Franklin Institute,* August, 1874, states that several memoirs upon the highest temperatures actually and theoretically attainable have lately been presented to the French Academy. M. Cailletet has been studying the influence of pressure on combustion. He finds, by means of an ingenious apparatus in which he has been able to burn not only a candle, but also a wick fed with alcohol, in highly condensed air, that the light gradually increases with the compression, finally becoming dazzling and so brilliant as to rival that of phosphorus in oxygen. But then, however, if the pressure be increased, the brilliance of the light diminishes, the flame becomes smoky, and flakes of lamp black are deposited. From this it is clear that the temperature of the combustion increases with the pressure up to the point of dissociation of the hydrocarbon gases of the candle. The same fact was shown by the spectrum; the spectrum increased with the temperature up to a certain limit, which could not readily be passed. From these facts Deville draws the conclusion that it is very decidedly an error to estimate the sun's temperature at several millions of degrees. These experiments, as well as those of Berthelot and his own, go to show that there is a limit to possible temperatures, and that a burning body cannot produce heat of an indefinite intensity. "Perhaps," he says, "the temperature of 2000°C. is the highest temperature which can exist in the universe." M. Violle concludes from some experiments which he has made, that there cannot be a temperature higher than 1400°C. anywhere.

Solidified carbonic acid gas dissolved in ether reduces the temperature to 140° below zero, Fahr. By evaporating this mixture in vacuo, the temperature falls to 166°. Solid carbonic acid mixed with solid nitrous oxyd and ether reduces it to 200°. By adding bi-sulphide of carbon to this mixture and evaporating in vacuo the temperature falls 20° lower, or to 220°, which is the greatest degree of cold yet attained.

II. BOTANY.

The Importance of a Study of Botany to Physicians.

The following remarks on this topic are made by Dr. W. T. Grant of Georgia, in the *Southern Medical Record,* September, 1874:

What good reason can be adduced why chemistry should hold its place and botany be excluded? Botany is certainly the more important, if for no other reason than because it is more practical, and will in the end give far more valuable results. I do not wish it understood that I advocate anything like appending botany to the chair of Materia Medica as a part of the duties of that professorship. I wish to see a separate and distinct professorship of *practical and medical botany* in every college; and I have not the least doubt but that it will repay the profession nearly as well as *any* other branch; and in saying this, I will not except even practice or surgery.

There are several questions still open, about which there is not now even a theory advanced, which it would be the special duty of this branch to investigate. What is now known as to the origin of the milk disease, prevalent in Kentucky some years since, and in all probability still numbering its victims, both human and bovine? Nothing, except that it is beyond a doubt of vegetable origin. But *what* plant, or whether any one in particular, is chargeable with the evil, no one now knows. The medical botanist who shall fully develop and elucidate the subject, will have well bestowed almost any amount of time and labor.

At one time the great Swedish botanist, Linnæus, while botanizing in Sweden, heard great complaint from the farmers that they lost great numbers of cattle every spring, when they turned them out into the woods. From his previous knowledge of the subject, he suspected that some poisonous plant eaten by the cattle caused the loss. He went into the woods in search of it, and soon pointed out a suspicious plant. The farmers set to work to eradicate it, and when this could not well be done they enclosed it. The immediate result was that few other cattle were lost. Who shall do the same for the Kentucky scourge?

A theory has been somewhat discussed, attributing epidemic disease to a cryptogamous origin; and I confess a great partiality for it. Not because it has been proved true, but simply because no other explanation has ever been offered, adequate to explain the phenomena of epidemics. The vegetable origin of these diseases has not been proved; but there has been no one capable of making the investigation. There have been able botanists as there have been able physicians, but for the development of this subject, these two capacities must be united in one person; and there never has been such a union, and never will be, until botany is taught as a regular branch of medicine.

Several other questions of somewhat similar nature have suggested themselves to my mind, in thinking of the subject of medical botany, and I will mention some of them.

I have already stated that I thought there is good reason for believing that the presence of an umbelliferous inflorescence, is evidence that a plant possesses drastic powers. Will not irregularity in the structure of the plant indicate the same thing?—and the more the irregularity, the more decided is the drastic action? I use the term *irregularity* here in its common English acceptation, which includes all that is meant by the botanical terms—irregular, unsymmetrical, incomplete, imperfect and extra-axillary. The *Lobelia inflata*, the *Magnus Apollo* of our botanist friends, is an example of this principle. It is both irregular and unsymmetrical.

Is it not true that among the plants of every country a remedy is to be found for every disease that is native to that country? This thought is but a part of that co-relation and co-adaptation of parts which is known to obtain and hold good in every part of Nature.

Plants having bulbous, cormose and rhizomatose roots, are generally violent. Are they ever narcotic? Fibrous-rooted plants are not generally active, unless they have some irregularity in the flower. Coraline, subærial, tuberous and tap-rooted plants are usually innocent or mild in their effects.

In the study of these subjects, it must be borne in mind that plants deposit their active principles in three several parts—in the bark, in the root, and in the fruit; and that the active principle of every plant is the product of a true secretion, can be proved, I think, and will be the subject of another essay, if it is acceptable to this journal.

The Vital Processes in Plants.

The *Boston Journal of Chemistry*, November, 1874, states that M. Corenwinder has contributed to a recent meeting of the Société des Sciences, of Lille, an exhaustive series of observations on the processes of respiration and nutrition in plants. He supports M. Claude Bernard's view, that the process ordinarily known as the respiration of plants—the decomposition of the carbonic acid of the atmosphere—is really a process of digestion, and that simultaneously with this, plants carry on, by day as well as by night, a true process of respiration, similar in all respects to that performed by animals, consisting in an oxidation of the carbonaceous matters of their tissues. By a very careful series of analyses, performed mainly on the lilac and maple, M. Corenwinder determined that the proportion of nitrogenous matter in the leaves gradually and progressively diminishes from the time that they emerge from the bud till their fall; the proportion of carbonaceous matter increases very rapidly during April and May, and then remains nearly stationary till October; while that of incombustible substance increases during the whole period of vegetation. He distinguishes, therefore, two periods in the vegetative season of the plant—the first period, when nitrogenous constituents predominate, is that during which respiration is the most active; the second, when the proportion of carbonaceous substance is relatively larger, is the period when respiration is comparatively feeble, the carbonic acid evolved being again almost entirely taken up by the chlorophyll, decomposed, and the carbon fixed in the true process of digestion.

III. CHEMISTRY.

On Chemical Constitution.

The *Chemist and Druggist*, September 15, 1874, gives an abstract from a recent lecture by Dr. Crum Brown in this topic:

Commencing by pointing out that the truth comprised in the theory of phlogiston was not recognized by its own supporters, Dr. Crum Brown proceeds to compare the dualistic radical theory of Berzelius with the unitary substitution theory of Dumas, Gerhardt, and Laurent, and to show that, in both these systems, chemical constitution is regarded as the order in which the constituents are united in the compound. This he does, in one instance, by the relation of trichlor-acetic acid and acetic acid respectively to oxalic acid, and in another instance by the connection of the sulpho-acids with hypo-sulphuric acid. The formulation of compounds containing three elements is also brought to bear upon this important question with the same result, for Berzelius gave prominence to order in the uniting of constituents by distinguishing two modes of chemical union. One of these, the electro-chemical, was fully capable of explaining the existence of binary compounds; the other, in which an unknown force was called into being, explained the union of two binary compounds having one element in common. The full meaning of these distinctions is only able to be realized by the substitution theory, although it is inherent in the theory of Berzelius.

The substitution theory, by the strictly relative character which it established between the constituents of a compound, changed the unit of equivalence from oxygen, a di-valent body, to hydrogen, a uni-valent substance. The lecturer then goes on to illustrate the power and value of the theory of Berzelius by showing that the uniting in pairs, the salient point of Berzelius, is able to be shown by the substitution theory, but that it never is so put forth, because in this case fractional formulæ, such as $KO_{\frac{1}{2}}$, $HO_{\frac{1}{2}}$, are necessary to its elucidation. The order in which the chemical constituents are united in a compound must not be confounded with the relative position of their atoms (ἄτομοι), for the phenomena of combination and decomposition are not alone sufficient to prove even that atoms exist. Chemistry is really a branch of physics, and the names of Faraday, Graham, and Andrews are guarantees that the so-called physical side of chemistry will never be divorced from the study of chemical change. The special directions in which physics has influenced chemical theory are: 1. Electrolysis. 2. Vapor density. 3. Specific heat. A real theory of chemistry can only be attained when the facts of the science are able to be connected by some hypothesis with the general theory of dynamics. "Chemistry will then become a branch of applied mathematics, but it will not cease to be an experimental science." In conclusion, Dr. Crum Brown points out that "we do not know when the change will take place, or whether it will be gradual or sudden, but no one who believes in the progress of human knowledge, and in the consistency of nature, can doubt that ultimately the theory of chemistry, and of all other physical sciences, will be absorbed into the one theory of dynamics.

On a former occasion Dr. Crum Brown himself pointed out where the truth lay hid in the theory of phlogiston, when he remarked that we now know "that no compound contains the substance from which it was produced, but that it contains them *minus* something. We now know what this something is, and can give it the more appropriate name of potential energy; but there can be no doubt that this is what the chemists of the seventeenth century meant when they spoke of phlogiston."

With a similar facility for finding truth at the bottom of a well, and of showing that to understand the chemistry of the present day a good knowledge of the theories of former days is required, Dr. Crum Brown indicates "that there is much real agreement between the two modes of representing chemical ideas, historically derived, the one from Berzelius, the other from Dumas, Laurent, and Gerhardt."

The doctrine of indivisible atoms (to use a tautological expression) does not appear to be held by Dr. Crum Brown in the same sense as it is by Dr. Tyndall. He never thoroughly gives up the idea of the indivisibility of his atoms, but it would rather appear that he believes in aggregations of particles that, for the purpose under consideration, may, under certain circumstances, be practically indivisible, but, put those same particles under different conditions, and then he will not answer for their indivisibility. Therefore, the lecturer may be taken to be a disbeliever in atoms according to the etymological signification of the word.

That Dr. Crum Brown looks upon force as a prior causation to matter, and that foot-pounds per second will be the key to the enlarged physical science that he contemplates, is evident from the crowning and concluding paragraph of his address, which breathes of freedom of thought, correctness of judgment, and the harmony of natural laws.

Chemical Examination of Saccharine Urine.

The following note is in the New York *Medical Journal*, September, 1874, by George B. Fowler, M. D., Examiner in Physiology, College of Physicians and Surgeons, etc.

I would submit the following results of some recent experiments with Trommer's test for sugar in the urine.

This test possesses advantages over all others, in that it is very simple in its application, easily made, and, more than all, does not deteriorate by keeping. But it has been long complained of that it would not react with the urine:

Add to an ounce of water one drop of honey, apply Trommer's test, and the characteristic reaction will take place.

But substitute urine for the water, and the test applied in the usual way will not reveal the presence of sugar, whether one drop or half an ounce of honey were added.

It has always been said that this interference was due to the presence of certain organic ingredients of the urine, urea, coloring-matter, etc.; and in order to get rid of them, we must filter the urine through finely-powdered animal charcoal.

This method is an effectual one, but not very convenient for the busy physician.

I have found that boiling urine possesses the property of *dissolving the precipitated red copper oxide.* But this power is limited; and if we add sufficient copper sulphate to begin with, to satisfy this property of the urine, and a little over for the sugar to act upon, the reaction will be perfectly satisfactory.

But, when three or four drachms of urine are used, as is generally the case, the quantity of potash solution which it will be necessary to add, in order to produce a clear blue color, will overrun an ordinary-sized test-tube. Therefore—

Take about ten drops of the suspected urine, and to it add two or three drops of a solution of copper sulphate, strength ʒj-℥j. *Then carefully pour in the alkaline solution until a clear blue color appears. Now boil, and, if sugar be present, the reaction will be perfectly distinct.*

Tests for Albumen in the Urine.

The London *Medical Times and Gazette*, September 26, 1874, makes the following observations on this head: In a practical point of view, we believe we are justified in discarding the use of caustic alkalies; of alum; of hydrochloric, sulphuric, acetic, tannic, and gallic acids; salts of mercury and iodine, sulphate of copper, alcohol, chloroform, and a host of other precipitants or color-tests; as well as the so-called polarisation test—which is not a test at all in the proper sense of word, and is utterly inapplicable to ward-work. For practical purposes, we possess then, only five good tests at the present moment—viz., Heat and Nitric Acid; Nitric Acid alone; the Prussiate of Potash test; that by Carbolic Acid; and the Picric Acid test. Some may think we should have added the Wolfram test, with Tungstate of Soda and Acetic Acid; but, although fairly delicate, it is so much inferior in point of rapidity and delicacy to the others named, that its omission from our list is no great loss. Let us examine the tests named, one by one:—

First, the Heat and Nitric Acid test. When an acid solution of albumen is heated to a temperature of 75° to 80° C. (167° to 176° Fahr.) it begins to coagulate and become turbid. If there be but little albumen—in other words, a weak solution—boiling may be required. In order to make sure of the urine being acid, and to dissolve any phosphates thrown down by the heating, one, or at most two, drops of nitric acid (strong and pure) are to be added after boiling. Some books recommend acetic acid, but this is far inferior to nitric, and some forms of albumen are very soluble in acetic acid and water. The essentials of this process are—a clean test-tube and urine free from flocculi and from obvious dirt. The upper part of the tube should be heated first; and one must take care not to add too much acid, because the compound of albumen with nitric acid is soluble in certain proportions of nitric acid and water. In order to be sure of small quantities of albumen by this method, we should allow the test-tube to stand a few hours, and in case of doubt examine the precipitate microscopically. What are the objections to this test, which is by far the most widely used of any we have named? The chief are—that it requires a spirit-lamp; that it is tedious, and may even require the microscope to be called in as arbiter; and that some forms of albumen met with in urine are with great difficulty coagulated by heat, even with the aid of acids, which again often dissolve what they are meant to discover.

Secondly, we have the Nitric Acid test, variously modified by Heller, Andrew Clark, and others. This, which is a delicate test for most forms of albumen, is also deservedly popular. We shall describe only the best method of using it. A clean, dry test-tube has about half a drachm to one drachm of pure colorless nitric acid poured into it, so as to give a column of one-third to a half inch of acid; and over this is gently floated, either by a pipette or by careful pouring from another test-tube or glass, about one drachm of the urine to be examined. If albumen be present, besides perhaps a ring of color (commonly said to be uroxanthine, but often iodine, or some pigment taken in diet or drugs, and sometimes bile pigment), we get a cotton-wool-like, flocculent cloud of precipitated albumen, which the practiced eye easily distinguishes from urates, nitrate of urea, or other matters, by its delicate flocculency. Very often it is colorless, at other times deep yellow or orange; but color alone is no test in this instance. What are the objections to this test? Chiefly the corrosive nature of the acid—it is no joke to have a bottle of this burst in the pocket; and next, the urine requires to be even freer from turbidity than with heat, and in urines full of urates this test is scarcely applicable; lastly, some forms of albumen are not thrown down by it. *Apropos* of mere turbidity, the circular Swedish filter-papers, now so common, and a wire bent into the form of a capital V, or rather Y, will soon perform the operation of filtering into a test-tube enough urine for any of our tests.

Thirdly, there is the Prussiate of Potash test, often called Böttcher's—we know not how truly. The urine is first acidulated (with acetic acid preferably), and then a moderately strong solution of ferrocyanide of potassium is dropped in; thus the albumen present is coagulated, forming a whitish cloud of more or less thickness. We first saw this test in Dr. Barlow's "Practice of Physic," and have used it a good deal, but our experience of it is that although cleanly, cheap, and requiring little apparatus (for the vinegar-cruet in a private house may supply the necessary acid), it is a slow and not always reliable test; for, like nitric acid, it sometimes fails to throw down albumen, which other tests will demonstrate.

Fourthly, the Carbolic Acid test, first proposed by Mèhu, and greatly improved by Dr. Tidy, whose form we adopt. He mixes equal volumes of glacial acetic and crystalline carbolic acid. The urine is put into the test-tube first, and the test added in the proportion (say) of one-tenth of the urine at first, and the whole well shaken. It has been objected that carbolic acid may be separated merely by the water, and may be mistaken for the milky precipitate which is undoudtedly caused by albumen. We have not ourselves found this to be the case, only the test is a very delicate one, and does detect albumen when boiling, etc., may not. Dr. Day of Geelong, writes us that he never goes his rounds without carrying this test with him. The chief objection to it, as far as we know, lies in the unpleasant smell of the carbolic acid.

Fifthly, we come to the Picric or Carbazotic Acid test lately recommended strongly by M. Galippe in the French medical journals, and noticed in the *Edinburgh Medical Journal* for July last. As the use of this re-agent may be novel to some of our readers, we shall describe it a little more minutely than some of the others. The commercial picric acid, largely used by silk and woollen dyers, is pure enough for common use. It is a pale yellow crystalline substance, not unlike tannic or gallic acids, but easily known from them by its deep yellow or orange color in solution, and the intense stain it gives to the fingers if not washed off at once. It is said to have the composition of $C_6H_3(NO_2)_3O$, or tri-nitrophenol; and its alkaline compounds are much used in the manufacture of explosive cartridges, Orsini bombs, and the like. Although trials have been made of it as a substitute for quinine, it is a very poisonous substance, not likely to be much used by criminals, because it dyes the body a pretty permanent yellow, and hence "leaves its mark" upon the victim too plainly. This is, *teste* M. Galippe (and we can confirm him), one of the best and most reliable tests for albumen in urine. A watery solution (made instantaneously by shaking up a few crystals of picric acrid with water) is first poured into a clean test-tube, say to an inch depth, and then the urine to be tested is dropped into it *guttatim*, and the tube gently shaken. Our readers are aware that pottassium salts also cause a precipitate with picric acid; but the shiny, feathery, golden crystals caused by potash, which soon sink to the bottom of the tube, are wholly unlike the whitish, milky turbidity caused by albumen. It is, however, worthy of note that an excess of the albuminous urine will redissolve the precipitate first formed. On adding a little more of the picric acid solution the albumen is, however, again thrown down; and this alternate precipitation and solution, in a see-saw fashion, makes a pretty experiment for the urologist to exhibit. The only objection we know to this test is the stain given to the fingers by the re-agent. This is, however, easily avoided by a careful operator; and there is one very great advantage: the dry acid can be easily carried wrapped up in paper and gutta-percha in one's pocket-book, or even in an envelope, or in the waistcoat-pocket—since a wine or liqueur-glass will serve as the test-tube in a private house. The reader who has followed us so far will, we think, agree with us that none of the common tests are quite satisfactory, and that we still lack one which shall be cleanly, portable, cheap and certain. Meanwhile we have several which in practiced hands are fairly to be relied on; and in all cases of doubt, not one, but several, if not all of the tests enumerated, should be used to solve the difficulty, if possible.

Test for Morphine in the Presence of Quinine.

The *Journal of Applied Chemistry* says:—When sulphate of quinine is shaken with 20 parts of water, any morphine present dissolves, while most of the quinine remains in solution. The latter is filtered out, and to the filtrate is added a few drops of iodic acid, when the solution will be colored yellow by free iodine if morphine is present. On shaking with chloroform the latter takes up the iodine and is colored a violet red. If no morphine is present the liquid remains colorless. Hydrochlorate of quinine is more soluble in water than the sulphate, and it is only possible to take up the iodine by chloroform when more morphine than quinine is present, as in the other case the iodine seems to combine with the quinine. The yellow color which appears immediately when morphine is present is the only test for it when the quantity is small.

IV. TOXICOLOGY.

Poisoning from Rhus Toxicodendron.

At the St Louis Medical Society, as reported in the St. Louis *Medical Journal*, October, 1874:

Dr. J. M. Scott reported a case of poisoning from the *rhus toxicodendron*, successfully treated by the local application of an aqueous solution of hydr. bichlor. to the face, arms, hands, etc.—Dr. Eberle's favorite treatment. Patient had not been exposed to the poison vine, but had received a bouquet from a friend in the country: she had been poisoned by beautiful flowers. He had never heard of a similar case, hence he reported this. What particular flower caused the eruption?

Dr. Kennard thought the symptoms described by Dr. Scott somewhat resembled urticaria, and that the woman probably suffered from an obstinate attack of urticaria. After a patient has been once poisoned by the poison oak, the disease is apt to recur every spring or summer for several years. Such persons are exceedingly susceptible to the poison, if they pass near the vine the disease reappears, the eruption breaks out and they swell up. He related a case of poisoning by the *rhus toxicodendron* which closely resembled a slight case of psoriasis. It usually lasts six or seven weeks unless treated.

A Case of Poisoning by Cyanide of Potassium.

Dr. A. M. Wassam, of Eureka, Kansas, reports in The *Clinic*, August 22, 1874:—

July 13th, 1874, I was called at 8 o'clock p. m., to see A. J. L———, aged 30 years, single, an artist residing in this city who had been almost constantly under the influence of liquor for almost a month. He had been suspected of taking poison with the intention of committing suicide. When I first saw him, perhaps an hour and a half after taking the poison, he was in the following condition; he recognized me and others present, and after some conversation he acknowledged having taken from ten to fifteen grains of the cyanide of potassium to destroy his life "in order to get rid of drinking," to use his own language.

He already had had convulsions for at least half an hour, lasting only a few minutes, his head was intensely hot, pulse full and eighty per minute, conjunctiva injected, pupils dilated and was having severe cramps of the stomach and bowels.

I immediately prepared an emetic of the sulphate of zinc, which was administered and quickly produced emesis. I then gave him the white of three eggs and ordered the following: R. Aqua ammonia, ʒ ss; Ol. Ricinii, ℥iij ss. M. Liq. one tablespoonful every hour. About half an hour after taking the first dose of the above mixture together with the white of three additional eggs, I repeated the emetic, ordered the ammonia mixture to be continued, and at the suggestion of Dr. C. A. Wakefield, whom I had called in consultation, prescribed sulphate of morphia sufficient to control all pain and quiet the patient The Dr. and I then left the patient in charge of his room mate and others for the balance of the night, considerably relieved.

July 15, 5 o'clock a. m., I called to see my patient and found that he had slept perhaps an hour, was feeling better, the convulsions had entirely subsided, had but little pain, pulse 84 per minute, complained of pain in the head, pupils still dilated, tongue red and furred, has had no operation from the bowels nor passed any water, has vomited several times during the night, the matter ejected containing some blood. I ordered an injection of sulphate of magnesia, applied a mustard draught over the region of the stomach; also ordered beef tea and boiled milk which he tolerated well, then gave the following:

℞.	Spts. ammoniæ aromat.,	ʒiij,	
	Magnesiæ optim.,	ʒiiss,	
	Aquæ menth. pip.,	℥iv.	M.

Sig. Teaspoonful every hour.

Called again at 4 p. m., he was then perspiring freely, pupils normal, bowels have been moved freely, also has passed a large quantity of water since morning, has vomited several times during the day and has taken some nourishment. He now showed symtoms of delirium tremens, has slept but little all along, still has some pain and soreness in the region of the stomach. I now prescribed chloral hydrate grs. xx every four hours, continuing the liquid nourishment. He then passed through a short course of delirium tremens, receiving appropriate treatment. The remedies principally relied upon were hydrate of chloral, opium and digitalis. With this treatment he recovered speedily, and has now (July 23), been attending to his usual business, an artist, for several days, rejoicing that he still has an existence among the living and regards intemperance as the influence that caused him to attempt to destroy his life. I did not resort to the use of alcoholic stimulants to "sober off" as recommended by some, although he frequently called for whiskey; besides, the condition his stomach was in, contraindicated its use at least by the mouth or per anum.

Symptoms of Strychnia-Poisoning.

Dr. J. Q. A. Hudson says in the *Southern Medical Record*, August, 1874 :—The only affection, that in the least approaches in resemblance strychnia-poisoning, is tetanus. The similarity is very complete; yet, by noting carefully the peculiar symptoms belonging to each affection, and especially by observing the history of the symptoms from the commencement, the physician will rarely fail to make a correct diagnosis. The following are the principal points of differentiation:

1. A premonitory symptom, which I believe is invariably present in tetanus, is an intermittent spasmodic pain, shooting from the precordia or ensiform cartilage to the back. There is constant precordial distress with the spasmodic pain, which comes and goes at irregular but rather brief intervals. This symptom continues during the entire period of the disease. This spasmodic pain, *as a prodroma* of strychnine-poisoning, is never seen. There may be severe pain, caused by spasmodic contraction of the diaphragm, during the paroxysms of strychnine tetanus, but as a forerunner of the paroxysm, it is believed never to occur. Hammond gives this as an important diagnostic of tetanus.

2. Tetanus is always preceded by a stiffness of the muscles of the neck and lower jaw. The lower jaw cannot be fully opened, and sometimes before the tetanic convulsions supervenes, the jaw becomes firmly set and cannot be opened by any reasonable force. This stiffness of the neck and jaw, as well as the precordial pains, sometimes precedes for hours the occurrence of the general spasm in tetanus. On the other hand, in strychnine tetanus, *trismus* does not exist, except *during the paroxysms*, and even then it is sometimes absent. Taylor says, in describing the symptoms of poisoning by strychnine: "The jaw is not primarily attacked, and is not always fixed during the paroxysm."—*Med. Juris., p.* 169.

3. *In tetanus*, deglutition is performed with difficulty, or may be wholly impeded or impossible during the *suspension of the paroxysm*. In strychnine tetanus, during the intervals, there is not very great difficulty in swallowing, though it is not done with the same ease as in health, and is performed in a sudden, gulping manner.

4. The approach and accession of a spasm of strychnine tetanus is accompanied by sudden cries and screaming. In true tetanus, these expressions of distress are absent.

5. In strychnine tetanus, the entire muscular system is involved during the paroxysm, including the upper and lower limbs, and even the hands and feet. In tetanus, the contraction of the muscles of the limbs is not so severe, and is sometimes absent; the hands are rarely affected, and in many instances the arms are unaffected.

6. The electric shocks, or muscular twitchings, are peculiarly diagnostic of strychnia-poisoning when present. They may not arise until after the first general spasm, and if the patient survives it, they come on before the supervention of the second. These electric shocks are not observed in tetanus.

7. The progress of the symptoms in strichnine poisoning is very rapid, the paroxysms succeeding each other with great rapidity, and, save in exceptional cases before referred to, the affection terminates in death or amelioration within two hours. In tetanus the course is comparatively more gradual, there elapsing several hours or a day or more, from the inception of the initiatory symptoms of epigastric pain and stiffness of the muscles of the neck and lower jaw, before occurrence of tetanic convulsions. The paroxysms of tetanus occur at long intervals, and death, in the most rapidly fatal cases, does not take place for several hours.

Singular Case of Snake Bite.

In the *Lancet*, September 26, the following case is recorded by Surgeon J. MULVANY, R. N.:—

The wife of the steward of the Naval Hospital at Trincomalee, a young and vigorous woman about twenty-six years of age, the mother of four children, and far advanced in her fifth pregnancy, was bitten on the dorsum of the right foot at 5:30 a. m. on the 30th of October last by the terrible tic polonga of Ceylon. She shouted lustily, and her husband, running to her assistance, tied a string tightly round the calf of the leg, and then ran for the "snake doctor." The pain was intense from the outset, and in fifteen minutes violent convulsions supervened, and she took to her bed. In an hour and a half the native doctor arrived, and applied a snake stone to the wound. Numbness now set in about the foot and gradually travelled upwards to the body. She became unable to see, and at 10 o'clock was insensible. The stone remained adherent four hours, and fell off at 11 a. m. Being acquainted with her husband, I readily obtained permission to watch the case, but could not offer assistance, as her caste did not permit her to receive any from me. She remained in a state of coma up to 4 P. M., and by this time her foot and leg as far up as the knee became considerably swollen, and there was a serous oozing from the puncture on the dorsum of the foot. The pulse was of good volume, but slightly diminished in frequency. She lay on her back, with the eyelids closed. The pupils were contracted, but relaxed slowly when exposed to light. The skin was cool everywhere, except the forearms, which, though uncovered, were hot. By palpation I ascertained that a condition of pregnancy existed, which I was informed was of nearly nine months' duration. No fœtal movements were detectible. The doctor put some drops in her eyes, and she began to show signs of rallying, and in about ten minutes afterwards began to speak feebly; and in a few moments further she had so far progressed that I predicted a favorable termination—a prediction which, from their experience of the deadly character of the snake, the bystanders received with incredulity. At 11 a. m. next day, October 31st, parturition, heralded by loss of vision, set in, and continued feebly until 9 a. m. on November 1st, when she was delivered of a child, which was greatly swollen and livid, and had evidently been dead a considerable time. She recovered perfectly, but slowly.

The snake was found, and put into a chakie, and given to my captain (F. P. Doughty), who took it on board the *Magpie*. It possessed the characteristics of the Crotalidæ in an eminent degree; was 3 ft. 8 in. long and 3½ in. in girth. In confinement it did not make any effort to eat or drink; frogs jumped harmlessly over it, and lizards and chickens remained unmolested huddled up in a corner of the box. A dossil of lint saturated with chloroform, and tied on the end of a long stick, was applied to its nostrils, and it inhaled the chloroform with great gusto, following the movements of the stick in every direction; finally, the head was got outside the box, and the neck jammed by the lid; the fangs were then exposed, and a Gecko lizard (Platydactylus muralis) was impaled on one of them; it died in two hours, and a small chicken similarly treated died in twenty seconds. The snake remained nearly three months on board without eating or drinking; was quite torpid by day, but very active as soon as night set in. It shed its skin on December 7th, and was in the act of shedding it a second time when it was accidentally killed by being placed in the sun. On dissection by Captain Doughty and myself, we found five spare fangs in each poison gland, all nearly fully developed.

The snake doctor, besides a liberal use of incantations, gave antimony internally, and dropped its solution into the eyes. The stone which he applied enjoys a widespread reputation, and its efficacy is attested by numerous authorities. Sir Emmerson Tennant cites some remarkable cases in which it was used with success. The snake stones are mostly disc-shaped, black, and heavy enough to sink in water; they were found by Faraday to consist of charred bone, blood, and coloring matter, and it is probable that their cellular structure confers on them an absorptive power to which their efficacy is attributable.

Treatment of Rattlesnake Bite.

The following advice is given by DR. G. M. RIVERS in the *Southern Medical Record*, September, 1874:—

As soon as a person is bitten, let a ligature, a hard, strong string, be tied six inches above the wound; this should be done immediately. Then, with a sharp knife cut entirely through the skin over and through the wound where each tooth enters. Then suck out the poison, extract it with cups, or apply a chicken recently killed and split in half, the flesh side to the wound. As soon as this is done, move the string a little higher, using a softer string drawn not quite so tightly. The object is to retard the absorption of the poison remaining in the system, and allow it to be as slowly and gradually impressed upon the nervous centre as possible. As soon as it possibly can be obtained (for you have only a few moments to act, and whatever is to be done must be done quickly), give the whisky, and give it freely—a gill every twenty minutes—until the patient is thoroughly intoxicated, and keep him so for twenty-four hours. If this plan is pursued with promptness and energy, few patients will die. And now yearly some life is lost in those localities where this reptile abounds. But, after all we may do, when an old and large rattlesnake strikes a person, a child particularly, in a part favorable for rapid absorption, recovery is doubtful.

A few cases illustrative of the above will suffice. A negro child seven years old, whilst sitting upon the rude steps to a temporary summer residence, and eating his breakfast, was attracted by a bright object under him, and struck at it with his spoon; his mistress, sitting near by, and seeing him make a wry face, said to him, "What is the matter now?—come here." He answered, "Scorpion bite me," and got up to go to her. Before reaching her, he vomited; his eyes were glazed and drawn back with a violent spasm; would have fallen, had he not been supported by a servant standing near; even then, his teeth were so firmly clenched that a spoon could not be introduced between them. Squatting now upon his hands, he hopped about the room in a singular manner, with his eyes closed, apparently perfectly unconscious of all around him, noticing nothing and saying nothing, but answering faintly when called. He continued this some time, then became quite exhausted; his lower jaw was relaxed and hanging down; his skin looked as if it had been oiled. He lay perfectly quiet, complaining of no pain, and died very easily three hours after he was stricken. As soon as the accident occurred, a servant was ordered to go for the doctor. Whilst saddling the horse near the door, he saw a large rattlesnake, with eleven rattles, crawling from under the house, the author of the terrible tragedy. Such was the confusion and excitement attending this accident, that although much was done for the child, a little pet, yet no efficient remedy was used. But such, I think, was the rapid diffusion of the poison, that nothing could have saved his life. In less than three minutes from the occurrence of the accident, he was stricken with death.

Another case was that of a country lad who, whilst plowing in a field, was attracted by the cry of dogs in pursuit of a cat. Having his gun with him, he ran to the edge of the wood, and was in the act of crossing a low worm fence, when he was stricken upon the heel (he was barefoot). Instantly, as if by inspiration, he drew a buckskin string from his pocket and tied it tightly around his leg. Soon after, the hunters coming up, gave him what whisky they had with them—about a pint. By this time he was much affected by the poison—suffering with vertigo, nausea and vomiting, dimness of vision, and prostration of strength. They took him up and carried him to a vacant house near by, and sent for his brother, who, being a man of practical good sense, plied him well with whisky. He was totally unused to it, but he took in the course of the night about three pints. Next morning I was sent for to visit him, and found him entirely relieved from the effect of the snake-bite, but suffering somewhat with "big-head," caused by the lively time he had had with the whisky. This was a large serpent, measuring five and a half feet, and having nine rattles.

Poisoning by Sulphate of Copper.

The rarity of cases of poisoning by sulphate of copper has induced the editor of *La France Médicale*, of September 16th, to publish, in a collected form, the evidence in the case of Moreau, the herbalist, lately condemned to death in Paris for having poisoned two wives with that substance.

The following extracts from the report of Dr. BERGERON, one of the medical witnesses, are of sufficient interest to warrant their reproduction. It appears that it was believed that Moreau's first wife had died from ulcerous disease of the stomach. She was not *enceinte;* her death, therefore, could not be attributed to the obstinate vomitings of pregnancy. She was thirty-three years of age, and when Dr. Leroy des Barres saw her for the first time, on July 27th, 1873, he found her pale, thin, and anxious-looking. She often had cramps of the stomach, with glairy mucous vomitings; she vomited nearly all her food, and complained of violent pains at the pit of the stomach. When Dr. Bergeron, in conjunction with his coadjutors, made the *post mortem* examination, they were struck by the remarkable state of preservation in which they found the body, although the woman had been dead about seven months. They were therefore enabled to open the stomach, and to ascertain that there was neither perforation nor cancer of that organ, to which an attempt had been made to attribute her death.

Dr. Rey attended Moreau's second wife during her illness in conjunction with Dr. Pleisch. She had complained of incessant vomiting, pains in her limbs, and died of gradual exhaustion. Her death was asserted to be due to diphtheritic angina; Dr. Bergeron and his colleagues, however, opened the larynx and pharynx, and could not find a trace of croupal exudation, nor was there any sign of cancerous affection of the throat.

The analysis of the reports given by the medical men who attended Moreau's wives proves that death was not due either to an affection of the stomach or to diphtheritic angina as asserted; but that they succumbed to exhaustion, produced by incessant vomitings for two or three weeks. The symptoms observed resembled those described by writers on the subject as characteristic of poisoning by salts of copper. The ingestion of salts of copper gives rise to epigastric pains, and especially to copious and continuous vomitings. Sulphate of copper, in small doses, is one of the most potent emetics; then supervene colics, nervous disturbances, with slow fever and gradual emaciation. The symptoms observed in the cases of Moreau's wives faithfully correspond with those observed in poisoning by copper. Everything noted, even to the swelling of the tonsils, and the pharynx, observed in the case of the second wife, can thus be explained. In fact, sulphate of copper acts as a caustic; if reduced to a bluish-white powder, and mixed with food at the time it is swallowed, it might act as a local irritant.

M. Lhote, analytical chemist at the Institution of the Arts et Metiers, deposed that he made two series of experiments in this case. Having received the organs in three jars, he, in the first place, ascertained the state of preservation in which they were; he then sought for traces of organic poison, but found none. He then employed the three ordinary tests for mineral poisons, and this proceeding resulted in the discovery of sulphate of copper, which he sought and found in the liver and in the kidneys; a result generally met with in cases of poisoning by copper. The results were identical after each of the three operations, M. Lhote having found quantities of copper, which he placed on an iron plate. In a fourth part of the organs removed from the two women, he found thirty *milligrammes* in the first wife, and twenty-one in the second. M. Lhote also made experiments on two dogs poisoned with copper.

Dr. Bergeron and his colleagues were so much interested in the much-discussed question as to the normal presence of copper in the animal organism, that they made experiments on fourteen dead subjects. They found only an infinitesimal proportion of copper—never exceeding one *milligramme* (.015 grain); whilst the liver of one of Moreau's wives yielded at least twenty times as much. They obtained from animals which had ingested small dôses of salts of copper during three weeks, about thirty *centigrammes* (four grains and a half) of copper—a quantity corresponding to the amount found in the bodies of the two women. One of the samples of earth collected from the graves contained traces of copper; but it was impossible that it could have reached the body, for the coffin was in too good a state of preservation. It was also quite impossible that that there should have been any accumulation of copper in the liver or kidneys, for the stomach and intestines did not contain any trace of it.

It was quite clear that the death of the two women was not due to natural causes; they both died after about the same term of illness, exhausted by incessant vomitings, and in consequence of the quantity of copper found in their organs. The result of the report was the condemnation of the accused, Pierre Moreau, to death, without the usual rider of "extenuating circumstances."

Poisoning by Chromate of Lead.

Two fatal cases of acute poisoning by chrome yellow are reported in the *Vierteljahrsch. für Gericht. Medecin*, January, 1874, by Dr. VON LINSTOW. These cases occurred in children, aged respectively 1¾ and 3½ years, and the poisoning was caused by sucking an unknown number of small, yellow substances, which had been used for ornamenting pastry, and which consisted of gum tragacanth and chrome yellow.

Chromate of lead, on account of its insolubility, has never been considered an active poison, and the fact that it is used so largely as a pigment for colouring not only ordinary substances, but also children's playthings, and even articles intended for food, such as confectionery, &c., renders these cases of more than ordinary interest. The extent of its use in confectionery can be seen by an examination of the report of analyses of confectionery, by H. B. Hill (*Mass. State Board of Health Report*, 1873, p. 390). Thus 77 samples, both white and coloured, were analysed; 21 were coloured yellow, and in 17 of these the pigment consisted entirely of chrome yellow, in 2 partially; of 12 specimens which were of an orange colour, the pigment in 9 consisted entirely of chromate of lead, and in 2 partially; 7 specimens of green were examined, 6 of which contained chrome yellow mixed with Prussian blue in 5 specimens, and with Scheele's green in the other. Of the 77 specimens examined, 36, therefore, contained the chromate of lead.

The symptoms of poisoning did not commence until several hours after the ingestion of the chrome yellow, which took place between 9 and 11 a. m. Both children were taken sick at the same time (between 2 and 3 p. m. of the same day) with vomiting, which lasted for several hours. The vomitus was yellow in colour. There was great prostration and extreme thirst, but no diarrhœa and no pain. On the second day, both had a hot and red countenance, and were stupid. The younger, about twenty-four hours after the commencement of the symptoms, had a slight diarrhœa and convulsions, which continued until death, which took place in forty-eight hours. On the third day an erythematous eruption appeared on the chest and abdomen of the elder. He was dull and stupid, and the temperature in the axilla was 39.5°C. On the fourth day, the pulse and respiration became irregular, the breath extremely fœtid, stupor and unconsciousness came on, and the patient died five days after the ingestion of the poison.

After death the mucous membrane of the stomach and duodenum was found swollen and loose, so that it could easily be raised from the sub-mucous tissue; it was inflamed, as was also that of the œsophagus, throat and larynx. In some places, the mucous membrane of the stomach and duodenum was entirely destroyed, and in one spot perforation had taken place showing that the chrome yellow had a corrosive action. These appearances were probably not caused by the chromate of lead, as such, but by soluble compounds formed after the pigment had lain in the stomach some time, and had been decomposed.

Besides the above appearances, there were found also hyperæmia of the brain and its membranes, beginning fatty degeneration of the liver, commencing icterus, hyperæmia of the kidneys, suppurative pyelitis, and a softened spleen; conditions which are often seen after death from poisoning by other corrosive poisons.

The number of these yellow ornaments ingested by the children could not have been more than six, since only seven were given them to play with, and one was afterwards recovered. If each child had eaten three of these, the fatal dose was less than 0.01 grm., or between 1-5 and 1-6 of a grain of the chromate of lead.

Poisoning by Arseniuretted Hydrogen.

Nine cases of poisoning by this gas (three of which were fatal) are reported in the *Vierteljahrschrift für Gericht. Medicin*, April, 1873, by Dr. FROST. These cases add materially to our knowledge of poisoning by this form of arsenic, since there are so few cases on record.

These persons were poisoned by inhaling the gas which was set free in a new process for extracting silver from metallic lead.

Some of the workmen were affected on the first day, others not till the second. All who were engaged in the operation of stirring were affected.

Those who recovered were affected during the first two days with loss of appetite, nausea, dizziness, gaseous eructations, sweet taste in the mouth, tremendous pain in the limbs, yellow appearance of the skin and conjunctivæ, narcotic sleep, from which the patient could be roused quite easily, a sensation of weariness in the legs, bloody urine and bloody stools. On the third day, the patients were found in a deep sleep, with jaundice, high temperature, pulse 100 and more, and difficult respiration, tongue dry, and covered with a white coat. On being roused, the patients complained of an intense pain in the head, a dirty taste in the mouth, great thirst, and excessive pain during micturition. The somnolent condition lasted about five days; the pain during micturition lasted three or four days, when the urine gradually became free from blood, and the jaundice began to disappear in four or five days. The patients were confined to their beds for two or three weeks, and could not resume work for several months.

In the fatal cases, the same sensations in the limbs were perceived, and there were, also, headache, nausea and vomiting, fluid stools, bloody urine, jaundice, small and rapid pulse (150–160), delirium and stupor, from which the patient could be roused, and death, which took place in one case in a little more than twenty-four hours after the commencement of the symptoms, in another in about two days, and in the third case in five and one-half days.

At the autopsy, a dirty yellow coloration was noticed in the skin and all of the tissues. In one case a garlicky odor was evolved from the fluid which flowed from the mouth and nose; a thin layer of bloody serum covered the arachnoid; the large vessels contained a little dark blood; the kidneys were congested, and dark-red in color, and the bladder was empty or nearly so. In one case a patch of the mucous membrane of the stomach, about two inches square, upon the posterior surface, had a dark grey appearance, and was easily raised from the sub-mucous tissue.

Arsenic was detected in all of the tissues and fluids which were submitted to analysis, in the stomach, blood, fluid which flowed from the mouth, kidneys, heart, lungs, and bronchi. Arsenic could not be detected in the urine of one of the patients who recovered.

Poisoning by Gelseminum.

The annexed case is reported in the Boston *Medical and Surgical Journal*, October 1st, 1874, by Dr. J. T. BOUTELLE.

August 20th, 1874.—Frank R., æt. 24. Works in a provision store. During yesterday afternoon had suffered from pains of a neuralgic character in the left shoulder, and occasional pain shooting from the fingers of the left hand upward to the shoulder. This pain became very severe at night, and his shoulder was rubbed with some "pain-killer" and a teaspoonful given internally. From this he experienced no relief, and shortly after midnight he begged for something to relieve the pain and make him sleep. There happened to be a vial of Fluid Extract of Gelseminum (Tilden's) in the house, which had been prescribed last fall for a child by the family physician, an irregular practitioner, and which he had assured them was a perfectly harmless remedy. At 1 p. m., he took a teaspoonful of this, and in about fifteen minutes repeated the dose. The pain was soon relieved and his eyes felt heavy, but in about half an hour he began to complain of choking, and soon arose struggling for breath, pushing his fingers into his throat as if trying to tear it open. He staggered, reeling from one room to another as though intoxicated, and in a short time after these symptoms came on, he threw himself upon the floor and became unconscious. This is the history of the case as I received it from his family.

I was summoned about 3.45 a. m., and reached the house at 4 a. m. Found patient moribund, respiration gasping, three or four per minute, pulse rapid and feeble. He was totally unconscious and could not be roused; pupils dilated, not responding to light, and could be touched without producing any contraction of the lids. Muscles relaxed, lower jaw drooping. Skin moist, extremities rather cold.

As the patient was so far gone, as the dose had been swallowed three hours before and was probably all absorbed, and as there was such complete insensibility, I considered it useless to try emetics. I laid him upon his back with head upon floor, dashed cold water upon face and chest to excite respiration. Gave brandy and water in small quantities frequently, and five grains of carbonate of ammonia every five minutes. Mustard to spine and friction upon extremities. The respirations became more infrequent, and the pulse grew slower and weaker. Artificial respiration was kept up for half an hour, but without avail, and he died at 4.45 a. m. No convulsions at any time.

Autopsy.—Five and a half hours after death. Body well nourished, rigor mortis marked. The blood was very fluid and dark colored, and showed no tendency to coagulate or to turn red upon exposure to the air, even after standing in a large tub for two hours. Heart, lungs, spleen, kidneys normal. Liver dark colored and contained much fluid blood. Stomach contained four ounces of light colored fluid mixed with glairy mucus. Its internal surface was deeply congested and marked by tortuous dilated vessels. Intestines normal. Brain rather pale. Sinuses not congested. The internal substance of the cerebral lobes was dotted here and there with small red points, but these were not sufficiently large or numerous to be considered of much pathological importance. No collection of fluid in ventricles.

Three Cases of Mushroom Poisoning.

The following cases occurred in the practice of H. P. PEEBLES, M. D., and are reported by D. B. Jackson, M. D., Newcastle, Pa., in the Cincinnati *Lancet and Observer*, October, 1874:—

Cases of mushroom poisoning are comparatively rare in this country, as they are not very extensively used for food. Some varieties of these cryptogamous plants are wholesome and nutritious, but others are highly poisonous. Even the innocent varieties may become poisonous during certain seasons, or when growing under certain circumstances. The poisonous mushrooms owe their fatal effects to a narcotic alkaloid, called *amanitine* by M. Letillier, which is capable of being precipitated by nothing except iodine and *tannin*. Hence tannin is indicated as its antidote. Besides *amanitine*, some species contain a deleterious acid principle.

Three children (aged respectively 8, 10, and 12) living in the First ward, Newcastle, Pa., ate mushrooms for breakfast, about 8 a. m., July 31, 1874 Their mother says that in about fifteen minutes afterward they all vomited, and in a few minutes after vomiting they became sleepy and stupid. The younger two were also purged somewhat. The oldest, a girl of 12, had one convulsion. They all became drowsy and went to sleep.

The family physician, Dr. H. P. Peebles, was immediately sent for, but was not at home, and no other was called. Consequently nothing was done for the patient until 1 p. m., when Dr. Peebles arrived. He found them all sound asleep. The girl was the worst, being unconscious, lying with her eyes open and turned up; ability to swallow almost gone, fluids being with difficulty forced down her throat. She could not be aroused by shaking, or shouting in her ear. Her hands and feet were still warm. Considerable quantities of mucus flowed from her mouth. Pulse over 100, respiration ——; pupils sensible to light, somewhat dilated and oscillating. Tickling the soles of the feet produced no reflex action. Her face was swollen and tongue coated. The older boy was nearly as bad, but the younger was not so much affected by the poison.

Dr. Peebles gave them sulphate of zinc, which produced vomiting in all three, although the girl required a second dose. He then administered tannin, which seemed to act as an antidote to the poison in the case of the boys, who began to improve soon. They were kept walking about the room and were given tea to drink—the doctor preferring this to coffee on account of the larger proportion of tannin. The tannic acid had but little effect on the girl, I suppose because the poison had been already absorbed. She aroused somewhat, but soon relapsed into the condition she was in when Dr. Peebles arrived. He gave her warm tea, and applied cold water to her head by means of a compress.

Dr. Peebles worked with the patients for one hour, and then called me to assist

I arrived at 2.30 p. m., and found the boys able to walk, but still quite sleepy and stupid. No further treatment was given them except to keep them walking about the room. I found the girl in the condition above described. Pulse 100, but regular; respiration 25. No winking of the eyelids. Dr. Peebles had given her about twenty grains of tannin when I arrived, and gave her four or five grains afterward. We kept rubbing her back and limbs, and shaking her, to rouse her up, and every few minutes we would hold her head over a tub of cold water, and pour a stream of water from the spout of a teapot upon her head, face, occiput, and along the spine. The cold douche seemed to have more effect than anything else. We continued this till 4 p. m., when she began to show signs of reviving. Her countenance assumed a more intelligent expression; she began to wink her eyelids; the flow of mucus from her mouth lessened and finally ceased, and she made considerable resistance when we used the douche But if let alone she at once relapsed into a stupor again. She now became able to swallow, and was given a little brandy every few minutes. We continued to use the cold douche, and she gradually improved till 4.30 p. m., when she could speak and answer questions, although her tongue was thick and her articulation indistinct, and she seemed bewildered, if not delirious.

The reflex movement returned, on tickling the soles of the feet, soon after we began to use the douche. At one time she breathed stertorously for a few respirations. At 5.15 we considered her out of danger, and left her, with directions to the family to keep her awake, give her brandy occasionally, and use the cold douche again if necessary. At 7.30 p. m., I saw the case alone She was able to walk a few steps, but very stupid and sleepy. Her stomach was irritable, and she vomited a few times. Was given castor-oil, but threw it up immediately. A demulcent mixture was prescribed. She was kept awake until 11 p. m., when she was allowed to go asleep. Next morning we found her entirely over the narcotism, but weak and pale.

Another Case of Poisoning by Mushrooms.

MR. JAMES SEDGWICK, M.R.C.S., writes to the *British Medical Journal*, October 10, 1874:—

The following case of poisoning by mushrooms appears sufficiently severe, and probably rare, in the early advent of tetanic muscular spasm, as to demand a short notice from me, more especially as such symptoms, I find, have only been very seldom seen, and then in fatal cases.

About 6.15 p. m., one day in August, 1874, T. F., when in perfect health, partook of about eight or ten carefully chosen small young mushrooms; after which, he took a walk round his farm, retired to bed about 11 p. m., feeling perfectly well, and not in the slightest degree suspicious that the mushrooms could be poisonous, and entirely ignorant of any of the symptoms of poisoning by fungi.

About 1.30 a. m., when I first saw my patient, I found him supported by his nurses, walking in the open air. He said he felt so sleepy, and had been obliged to leave his bed and room, because he could only breathe with very great difficulty. He added that, after sleeping until 12.15, he awoke suddenly with spasmodic twitching in his hands and arms, soon followed by a suffocative feeling; so much so, that he felt he should die from it. This necessitated his removal to the open air; and a glass of brandy and water was given.

At 1.30 a. m., he was drowsy, and not quite collected; said he felt as if he should soon be delirious; but both tetanic muscular spasm and dyspnœa had subsided. Pupils somewhat inactive; pulse regular. I at once emptied the stomach twice by emetics, and then gave an aperient. The vomited matter contained several mushrooms, very probably all that had been taken; and, though six hours had elapsed since the meal of mushrooms had been eaten, very little could have passed the stomach. Great relief followed the action of the emetics. He had no return of discomfort, except a feeble digestion, and for a few days a feeling in his arms which he described as similar to that caused by riding an unruly pulling horse for a day.

Poisoning from Aceto Arsenite of Copper.

The *Journal of Applied Chemistry*, August, 1874, says:—

We have frequently had occasion to call attention to the dangers attending the use of Paris green for any purpose whatever. Deaths by accidental poisoning with this pigment are becoming quite too frequent and numerous. Three persons who partook of lemonade and chow-chow pickle at No. 17 West Fifty-seventh street, New York, on the 19th of July, were soon after taken ill, and on the 21st one of them, named John Powers, died. His sister died the next day, and Ellen Burke, the cook, died on the 24th. Portions of the stomach and intestines of each were sent to Dr. Doremus for analysis, and in each case he detected the presence of arsenic and copper; he was therefore of the opinion that death was caused by arsenite copper, commonly known as Paris green.

In reply to a question by the coroner as to how much Paris green would cause death, he said that a very small quantity would be sufficient. A juror asked him whether he thought a grain would kill a man? He said he did, and that he would recommend the jury to warn the public against its use. The Professor also said that he would take that opportunity to earnestly request that the members of the press who were present would impress upon the public the extreme danger of using so violent a poison indiscriminately about their houses for the destruction of insects, when powdered borax or other equally harmless preparations would do as well. As an instance of the danger of using Paris green in any way about dwellings, he cited the case of the poisoning of the whole family of an eminent physician in London by a single loaf of bread, which the baker had placed, while warm, on a shelf that had been painted with green paint composed of Paris green.

Carbonic Acid Poisoning in Sick Rooms.

The toxical effects of carbonic acid in sick rooms are well set forth by Dr. W. H. THAYER, in the *Sanitarian* for December, 1874. His words are:—

I start with the proposition that the most serious impediment to recovery in fatal cases of acute disease is the daily and hourly administration of fatal doses of carbonic acid gas; and the same treatment is the chief cause of the gravity of many cases which, without this poison, would be of mild form.

So little alive to this fact are a very large proportion of medical men that it will require copious and well-authenticated illustrations to convince them. And the difficulty will be rendered still greater by the errors in some of the domestic habits of physicians themselves.

Two very grave cases of double pneumonia, lately treated, gave convincing evidence of the imperative necessity of ridding the air of the sick room of carbonic acid gas. In both cases I was satisfied that if the amount of carbonic acid which we find in average sick rooms had been added to the atmosphere of the room, the patients would have died, for they could not have borne the addition of any other depressing influence.

The first case was that of a young man, twenty years old, a bookkeeper, not robust, and a sufferer from serious dyspepsia for several years past, who on the night of May 13, 1873, had a rigor followed by fever, which he attributed to exposure in walking in Greenwood Cemetery on the evening before. On the evening of the 13th, the characteristic symptoms of pneumonia appeared. I first saw him on the 14th. He was sitting up in bed, unable to lie down from pain in the left hypochondrium; he coughed much, with expectoration of viscid, rusty sputa; had bronchial respiration, bronchophony and dullness on percussion over the left back and side, from the middle of scapula to base of chest; he had no appetite; his tongue had a thick, white pasty coat; pulse, 130; respiration, 44; temperature, 103.

In the night of the 16th, hepatization of the right lower lobe took place, with great aggravation of all the symptoms, increased dyspnœa and debility and lividity of the extremities. On the 18th the expectoration consisted of an abundant sanious fluid. Convalescence began on the 20th. On the 21st the returning crepitus was heard in both backs. On the 25th he took solid food.

The case was very grave when the pneumonia became double, and the patient's aspect was so bad on that morning that a neighboring physician, who was called in before I arrived, would not advise any remedies, as he considered him dying and past relief. The lividity of his nails continued very marked for two or three days. But persistent nourishment, active stimulation, free use of carbonate of amonia, exchanged for the oil of turpentine when the sputa became watery and bloody, quinine, counter-irritation, and the careful and thorough removal of carbonic acid from the air, brought him through. Although the weather was cool, so that we had a fire in the grate, two windows were kept constantly wide open, and an outer door, on the opposite side of the room, much of the time, and a current secured through the room, and across the bed. This was persisted in day and night, and in all weathers, including a cold rain storm; and of all the agents in his treatment I considered the careful removal of the vitiated air the most important.

In four days from the initiatory chill the second lung was hepatized, in five days more returning crepitus was found, in four more he took solid food, and in five more both lower lobes were found in nearly normal condition.

The other case referred to is that of a lady, 60 years of age, whom I treated in April, 1874, with double pneumonia, followed by diphtheria, involving the entire mouth and pharynx, which latter relapsed and was complicated with acute nephritis, characterized with albuminuria and œdema of lower extremities. Under a series of affections of so grave a character, a woman of 60 might well be expected to succumb. But she recovered completely—a result which I should not have dared to hope for, had not a good current of air been maintained through her room by means of open windows and doors, day and night, and in all weathers, the temperature being raised by a fire.

In four other cases of simple pneumonia, treated last Spring, the recovery was remarkably rapid under similar circumstances.

I need not multiply instances; but in all acute affections I have always regarded the means employed for a constant and thorough removal of vitiated air from the sick room as the most important of all remedial measures.

MATERIA MEDICA AND THERAPEUTICS.

I. PHARMACOLOGY.

Benzoated Oxide of Zinc Ointment.

The Tennessee *Pharmacal Gazette*, November, 1874, contains the following note from Dr. L. M. **Conner**:—

Among the many formulas already published in almost every journal in the United States, I find none giving satisfactory results, with the exception of one in which a paint-mill is used. But on account of the absence of such an article in our shops, we are necessarily driven to further researches; and having thus been induced, I made several experiments in order to avoid this great obstacle, as is known to all who have ever attempted to prepare it, and after many trials in various ways I found *glycerin* to be of much value, and recommended the following formula:

℞.	Glycerin,	q. s.	
	Zinc Oxid, pure,	ʒj.	
	Cerate,	℥j.	
	Benzoin Tincture,	ʒj.	M.

Rub first the zinc oxide in a mortar with sufficient glycerin to form a thick paste, and having melted the cerate, mix them, and add the benzoin tincture, and stir constantly until cool. The zinc and glycerin must be well rubbed in order to avoid any lumps in the ointment. According to this formula the ointment is easily prepared and beautiful in appearance.

Aromatic Sulphuric Acid.

Mr. S. **Whittier** says in the *American Journal of Pharmacy*, November 1, 1874:—

I devised the following formula, which, I believe, produces the *intended* preparation, *i. e.*, a diluted aromatic sulphuric acid of a dark-red color:

℞.	Sulph. Acid, C. P.,	troy, ℥vj.
	Alcohol, 95 per cent.	Oj.
	m. s. a.	

When cool, add the following *flavoring* mixture:

℞.	Oil Cinnamon,	gtt. v.	
	" Ginger,	gtt. vij.	
	Alcohol,	f℥xiv.	M.

Afterward, add the following *coloring* mixture:

℞.	Rosæ Gallicæ Petal,	℥j.
	Aquæ Bullientis,	q. s.

Pour the boiling water on the rose leaves, and express ℥ij (2), then filter the entire preparation, and it will remain clear and unchangeable, and will mix with water without forming any precipitate.

As the propriety of using the *oils* may be questioned, I will quote from the U. S. Dispensatory on the properties of aromatic sulphuric acid:

"It must be viewed merely as sulphuric acid diluted with alcohol, and containing the essential *oils* of ginger and cinnamon."

The red-rose petals produce the desired *color*.

The proportion of oil was arrived at by an estimate of the average amount of oil contained in ginger and cinnamon.

By this method a very little water is introduced, displacing an equal bulk of alcohol; but if ninety-five per cent. of alcohol is used, this slight reduction will not admit of any *practical* objection.

It is over three years since I first prepared some aromatic sulphuric acid by this process, and, since then, I have submitted it to the use of several physicians. I have also carefully watched for any changes in it while standing in the store, and, finding only favorable results, I now submit the formula to the consideration of "whomsoever it may concern."*

Fluid Extract of Guarana.

MR. J. B. MOORE, of Philadelphia, says in the *American Journal of Pharmacy*, November 1, 1874:—

I have occasionally received prescriptions for guarana in powder for the last two or three years, but it was not until recently that I have had it prescribed in the form of fluid extract; and not having any of the latter on hand, and knowing of no published formula by which to make the fluid extract, I at once sent for it to several of our leading pharmacists, but could not obtain it. So, thinking that I might, perhaps, have future calls for it, I concluded it would be well for me to devise a formula and process for its preparation. The expensiveness of guarana, however, made it rather an uninviting subject for experiment; but as I was fortunate in my first conception of its character, and the proper strength of menstruum required for its exhaustion, I encountered but little difficulty in framing a suitable formula. And as there is, to my knowledge, no published formula for a fluid extract of guarana, I here present the one I have adopted, which I offer for the benefit of my professional brethren, who may be thus enabled to make the preparation for themselves, and thereby be able to insure its reliability, for this is doubly important in a new remedy, which is still the subject of experiment by the medical profession, to determine its physiological action.

℞. Pulv. Paulliniæ, troy ℥xvi.
Alcohol. Fort.
Aquæ, aa q. s.

Mix three measures of stronger alcohol with one of water, moisten the powder with the menstruum, and pack it in a glass funnel prepared for percolation, and gradually pour the menstruum upon it, until one pint of tincture is obtained. Set this aside, in a shallow vessel, to evaporate spontaneously to twelve fluidounces; continue the percolation with the same menstruum until two pints more of the tincture are obtained, or until the powder is exhausted. Evaporate this by means of a water-bath, at a temperature not exceeding 140°, to four fluidounces. Mix this with the reserved tincture and filter through paper.

This formula yields a perfectly reliable preparation. It is transparent, of a deep reddish-brown color (almost identical in appearance with the fluid extract of gentian), with a bitter, astringent, not unpleasant taste, leaving an after-taste on the palate strongly resembling that of coffee.

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*In the *American Journal of Pharmacy*, 1867, p. 201, Mr. Thos. N. Jamieson proposed to make aromatic sulphuric acid from oil of cinnamon, twelve minims; tincture of ginger, two fluidounces; alcohol, twenty-four fluidounces; sulphuric acid, six troyounces, and, if desirable, to color with saunders, or, preferably, with cudbear. Most modern Pharmacopœias direct this preparation to be made from the drugs, like the U. S. P.; it has been discontinued in some, as on the French Codex since 1866.—*Editor American Journal of Pharmacy.*

exhaust the drug of its virtues, and the proportion of spirit retained in the finished product holds in perfect solution all its soluble active matter. A sample of this fluid extract, made over three months ago, is still in excellent condition, showing no signs of change, and is entirely free from deposit.

In an emergency, a solid extract of guarana may be made by carefully concentrating the fluid extract, by means of a water-bath, to the proper consistence. But, as this medicine is likely to be often prescribed in the form of pills, a definite formula and process for making a solid extract should be made known. I therefore, after some experiments with perfectly satisfactory results, offer the following process, which affords a most excellent solid extract of the drug, unimpaired by process of preparation, if the directions given for its manufacture be observed:

℞.	Pulv. Paulliniæ,	troy ℥xvij.
	Glycerinæ,	f℥ss.
	Alcohol. Fort.,	
	Aquæ,	aa q. s.

Mix three measures of stronger alcohol with one of water, moisten the powder with the menstruum, and pack it in a glass funnel prepared for percolation, and gradually pour the menstruum upon it until one pint of tincture is obtained. Set this aside, in a shallow, open vessel, in a warm place. Continue the percolation with the same menstruum until two pints more of tincture are obtained, or until the drug is exhausted. Evaporate this by means of a water-bath, at a temperature not exceeding 140°, to a syrupy consistence. To this add the reserved portion and the glycerin, and continue the evaporation.

Preparations of Raw Beef.

Mr. James Kemble, in the *American Journal of Pharmacy*, October, 1874 says on this subject:—

It will be seen, by the experiments here made, that raw beef is applicable to every-day practice in hospitals. cities and places where there is access to markets for the beef. Physicians can prescribe the dose to suit their patients, and it will have to be made fresh every three or four days during the warm weather. My experiments were made in July, with the thermometer ranging among the nineties. I judge, that in cold weather this preparation could be made to keep good and sweet for a week or more.

I would suggest a formula for general use, as follows, viz:

℞.	Fresh Raw Beef (lean),	℥vj.
	Sweet Almonds, deprived of their shells and roasted,	℥j.
	Bitter Almonds,	ʒvj.
	Sugar,	℥vj.
	Glycerin,	℥ij.
	Water sufficient for emulsion,	℈j.

Rub or beat the beef, almonds and sugar to a fine pulp in a wedge-wood or wooden mortar, then add water gradually until a smooth emulsion is formed, and strain through a sieve or coarse cloth; return the residuary mass to the mortar manipulate with the balance of the water until f℥xiv. are obtained, strain all, through a finer strainer, add the glycerin and bottle; the bottle is to be kept well corked. Dose:—f℥j., containing ʒiij. of the beef.

The physician in prescribing can order the addition of brandy, pepsin, or any other medicine he wishes to administer at the same time. I tried combining ferric pyrophosphate with the mixture; it combines well, but makes a dark, unsightly preparation, on account of the combination of the iron with the blood contained in the beef.

II. GENERAL AND SPECIAL THERAPEUTICS.

Blood-letting in Shock.

The *Medical Times and Gazette*, August 29, 1874, contains a lecture by Dr. B. W. Richardson, from which we extract as follows :—

EFFECT OF BLOOD-LETTING FOR CURE OF HEAT-SHOCK.

An early impression has probably held me more closely than most medical men of my time to the practice of venesection. The impression to me is as vivid now as it was when it was first made, thirty-six years ago. Into the garden of a practitioner of medicine, who gave me some of my earliest lessons in the art of physic, there was brought one extremely hot day a man who had been struck down by the sun's heat in the reaping-field. The man was carried by two or three of his comrades as a dead man might be. He was pale, speechless, unconscious, and rigid. I remember that the stiffness of the man struck me as most remarkable, and filled me with alarm, for when he was set in an arm-chair there was a difficulty in bending him into it. He showed, in fact, what we in this day recognize, through experiment, as spasm from heat; and we are aware now that this means a condition of extreme danger. Without a moment's hesitation as to the practice he should pursue, the surgeon tied up both arms of the man for venesection, and bled from both at the same time. For a brief period there was a feeble flow of blood, then the current came in full stream, filling quickly two pint measures with blood as bright red as if an artery instead of a vein had yielded it. Under this abstraction, the muscles of the man relaxed; he breathed deeply, with a sighing expression; looked around, and then broke the silence by saying to one who was holding a basin, "You're a good 'un!" and from that moment recovered his consciousness. The flow of blood arrested, and a bandage applied, this man got up from his chair, and walked to his home. He positively never came back to report himself, but I met him driving a cart a few days afterwards, sitting on the shaft and smoking his pipe, as well as if he had neither been brought to the gate of death by accident, nor pulled from it by bold and scientific art.

EFFECT OF BLOOD-LETTING FOR CURE OF MECHANICAL SHOCK.

While serving a term of apprenticeship with Mr. Henry Hudson (now in practice at Homerton, and still my good friend,) I went to see some pony races held at Burrow Hill, a place reputed to be the remains of a Roman camp, well known to the antiquarians. The race-course was flanked all round on its outside by a rising ground, once an embankment or rampart, and on this several hundred spectators had gathered together. During one of the races, while the ponies were running their final heat, a woman, about forty-five years of age, rushed down the embankment to pull back a child that she considered was in danger. The impetus she got in the quick descent, prevented her from stopping at the foot of the embankment, and projected her into the course just as the riders were passing the spot. She was knocked down, and was so stunned that when she was picked up she was at first considered to be lifeless. In a little time it was detected that she was breathing, and so she was conveyed from the hill to an inn the village of Burrow, where Mr. Hudson, taking me in company, attended her. She was put to bed immovable and unconscious, with her eyes fixed, and her breathing deep, noisy and slow. I recall perfectly the observation that the pulse was all but imperceptible at the wrist, and that the veins of the arm filled very slowly. As was then the orthodox practice, the fillet was applied; a vein was opened; blood, which but trickled at first, began to flow as the hand of the patient

The menstruum employed in the above process is well calculated to thoroughly was pressed and moved; slowly the stream of blood increased, and at length came full. When thus the previously stagnant blood began to move, and the heart found relief from the pressure to which it had been subjected, the phenomena of active life recommenced. The deep breathing became shorter and quicker, the pulse at the wrist rose, the muscles began to move under a half-conscious volition, and before we retired the patient was so far recovered as to be able to swallow liquid food. We left her feeling she was safe, and we were justified in our hopes; for, although she had lost a pint and a half of blood at least, she suffered nothing from the loss of it, and in a day or two returned to her home and to her ordinary duties, perfectly restored.

EFFECT OF BLOOD-LETTING FOR THE CURE OF LIGHTNING-SHOCK.

Our forefathers were satisfied as to the good effects of blood-letting in cases of lightning-shock. Dr. Macaulay, an able naval surgeon of last century education, has left on record the history of a man who, struck down on deck by lightning, and being entirely insensible, was brought to consciousness and recovery by the rapid abstraction of over forty ounces of blood. I have not myself had the opportunity of treating a case of lightning-shock in the human subject, but an experience of another kind bears directly upon the value of the remedy in such cases. In experimenting with the great induction coil at the Polytechnic, I tried to kill large animals—sheep—painlessly, by an electrical discharge derived from a Leyden battery set "in cascade," and presenting ninety-six feet of surface. This shock is identical with the fatal intense shock of lightning, and by passing it once through the body of a sheep, it rendered the animal instantaneously unconscious—to all appearance dead, and, as I found by one line of experiment, actually dead, if nothing were done to the animal. But in another line of experiment the animals, so soon as they were stricken, were removed by the butcher, and were subjected to division of the vessels of the neck in the usual manner of killing in the slaughter-house. At first blood flowed very slowly from the operation, but in a short time the current became freer, and, as it became free, the phenomena of active life, previously suspended in the animals, returned. There was return of consciousness, of motion, of struggle for liberty, and all those proofs of life that an animal passes through, previous to convulsion, when it is submitted to slaughter without shock.

If we connect the experience of those of our predecessors who have successfully employed blood-letting for the cure of lightning-stroke with the experimental facts I have here adduced, the inference is, I think, as fair as inference can be, that blood-letting is the remedy for the effects of the shock of lightning. Thus in their bearing the experiment, equally with the experience, becomes of clinical value.

On Koumiss.

Of the few trials of Koumiss yet made in this country, we quote the following reported to the Chicago *Medical Journal*, November, 1874, by DR. O. C. DE WOLF of Chicago.

After many trials and much patient labor, Mr. Arend, druggist, 521 West Madison street, succeeded in producing a koumiss which, so far as I can judge, is a good article. It answers, in every particular, to the description given by those who are expert in its manufacture and use.

While he was experimenting, and not yet satisfied with his product, I was called, on the evening of July 25, to visit a child twenty-two months old, two days sick with cholera infantum. Neither food, medicine, nor ice had been retained in the stomach a moment for eight hours; the dejections were frequent and characteristic;

surface cool; face pinched; and the fearful screech every two or three minutes was indicative enough of the complete nervous exhaustion and approaching death of the patient.

I had very recently read Dr. Jagielski's paper on koumiss, read before the London Medical Society, in Febuary, 1874. In it he dwells much on the magical effect of koumiss, highly charged as it is with carbonic acid, in allaying nausea, calming gastric irritation, and increasing the energy of the heart's impulse. I found a beer bottle of full (A) koumiss at Mr. Arend's, five days old, and returned to my patient.

In opening the bottle, two-thirds of it escaped, but enough was secured to make a beginning, and the child took two tablespoonsfull, a greater part of which was retained. A second bottle was procured. Some of the casein, which had separated in flocculent masses, was taken out, and the child fed freely with the remaining liquor. She took no other food, fluid, or medicine. In three hours she slept, the surface became warm, discharges gradually ceased, and she steadily convalesced.

I frankly confess my belief, that I had no other than this accidental resource which would have successfully met the emergency.

Mr. F. H. L., æt. 26, clerk in a banking house in this city, of a consumptive family, consulted me in March last. I could detect no local pulmonary trouble, yet his general condition was far from satisfactory. I advised him to eat fatty food, dress warmly in flannels, and change his occupation. From time to time he reported himself as improving, and so it seemed. On July 27, while at his desk, he had an attack of violent hæmoptysis, which was repeated in three days. I only report his progress and so much of his case as is of interest in connection with the present subject. The lower two-thirds of right lung became solid; not the slightest cough nor expectoration; stomach irritable; would take neither milk, champagne, nor alcoholic stimuli of any kind; slept badly; pulse, 115–30; heat of surface, 101°–3°; emaciation rapidly progressive.

Towards the last of August he became so feeble that he could only be moved from side to side of the bed with much care, and always in a horizontal position. His family were summoned from Connecticut, and I had no thought of his living a week. Prof. Henry M. Lyman, who had seen the patient twice during his illness, was again desired to visit him, and confirmed my opinion of a probable fatal result soon; that he could not be moved, etc. The koumiss was now in successful manufacture at Mr. Arend's, and on August 28th he commenced its use.

He had great disgust of milk, could never take a tablespoonful without pain following it, and objected strongly to the koumiss. He soon learned to love it, however, and took, for ten days, about one quart per day. His sleep returned: indeed, his nurse and friends were fearful he was sleeping too much, and would awaken him; pulse slowed to 100 per minute; temperature fell to 99°; and his strength was so far recuperated that, on September 10th, he was ready to undertake a journey of fifteen hundred miles, which he accomplished comfortably. Since deprived of his koumiss, he is again sinking, and in a letter from his father, dated September 23d, he informs me: "Frank has gone back about where he was before he commenced the koumiss." While the case would have progressed to a fatal issue under any circumstances, yet the markedly restorative influence of koumiss was well exhibited, and were my paper not already too long, it would be instructive to consider the "manner and the method" of its help to my patient.

In a case of carcinoma of the rectum, in which the patient had become greatly exhausted from the profuse discharge, and an irritability of the stomach, which for days refused all nourishment, the effect of koumiss in arresting vomiting, producing sleep, and temporarily reviving the strength, was extremely gratifying. Prof. J. Adams Allen saw this lady, in consultation.

Mr. B., æt. 31 years, bookkeeper, has suffered much from dyspepsia and nervous depression for the past two years, and for three months, last spring, was not able to occupy his desk. Food distressed him; bowels distended and sore; considerable emaciation. In July he visited the Atlantic coast to obtain benefit from the sea air. Not much improvement. Commenced taking koumiss last of August, and in one month had gained in weight seven pounds; called himself well. Early in October he returned to his ordinary diet, and his dyspeptic troubles recurred. He is now taking koumiss, with the same benefit as at first.

The quantity of koumiss advisable to take in commencing its use, should not exceed one champagne bottle daily, for an adult, and even that amount sometimes produces a slight febrile reaction. If headache occurs it should be suspended for a day or two; but in a short time a toleration is generally established, and the patient soon discovers how much he can take, and then he may live entirely upon koumiss, or, when the stomach will tolerate other food, it may be added. It does not interfere with any other course of treatment. The secretion of urine is generally much increased. When a tendency to constipation exists, the fresh product (No. 1 or 2) should be used, but if diarrhœa is troublesome, an older sort should be taken. A piece of stale bread or cracker, eaten immediately after drinking, will relieve the fullness of stomach sometimes complained of.

The desire for sleep generally experienced after drinking koumiss, should be regarded as beneficial, and should not be interfered with.

Therapeutic Value of Salicine.

Dr. N. D. Tobey says in the *Southern Medical Record*, October, 1874:

The therapeutic properties of salicine can be regarded as tonic and antiperiodic, and testimony is not wanting to class it as such an agent. Without giving further the opinions of authors upon the drug, we will now endeavor to show that salicine is a drug of no little utility. Our first acquaintance with it was during the years of of 1864 and 1865, when the price of quinia was very high on account of the war. We did not have, however, much experience with it as an antiperiodic, from the fact that the country in which we were practicing was very little affected with malaria. We used it as a simple tonic in cases where, in our judgment, quinine was indicated, and saw no reason to doubt its utility as a therapeutic agent. Since then we have been using it, and while we are free to confess that we do not regard it as certain in its action in intermittent or remittent diseases as quinine, yet, in many instances, it can safely be relied on, and on account of its being less irritating to the stomach, can, in some cases, be used more advantageously in some forms of neuralgia—those which simulate migraine, or sick headache, we have found it beneficial. The first case in which we gave it a fair trial, was one known popularly as sun-pain. The patient had suffered with a pain above his left eye, periodically, for years, the character of which was to remit at about 12 o'clock in the day, and then come on violently about 6 o'clock, or sunrise, the next morning. I used hypodermic injections of morphia and sulph. quinia, and relieved him of his first attack, in which I saw him in about ten days. In about six months it again made its appearance, and was relieved after about ten days of suffering by the same treatment. The pain again appeared, after a lapse of about six months, and the same treatment was again tried: morphia, hypodermically, and quinine, for about two days, with no relief whatever. I then prescribed about ten grains of salicine at a dose, to be repeated in two hours, beginning about 3 o'clock in the morning, and had the satisfaction of seeing my patient relieved after using the prescription two mornings.

In this case, the morphia injections and quinine in large doses always severely nauseated the stomach. The salicine did not nauseate at all, and, besides, did not produce the ordinary condition known as cinchonism. The second case was not of the same character, but the patient complained of a dull, throbbing headache, commencing about daylight, and leaving him about noon. It had annoyed him for several days, but he was busily engaged at his work, and never ceased on account of the pain. I gave him six powders of salicine, containing about six grains each, ordering him to take one at bed-time, and two early in the morning, at an interval of about two hours. The six powders gave him entire relief.

Others, of a like character, might be enumerated here, but the above will suffice to illustrate the action of the drug in cases of a neuralgic form, which seem to depend upon what might be called centric causes, as no appreciable cause for the pain could be found in arrest of secretion or initiation of internal viscera. In such cases, we believe it to be as powerfully antiperiodic as quinine.

Now, to what extent salicine may be antiperiodic in regular intermittent fever, and what influence it may have over malaria in the blood, we will not pretend to say. Our use of it has not been sufficient to aid us in arriving at anything like a fixed conclusion on this point. If quinine exerts its antiperiodic process as a spanæmic, we are inclined to think that salicine does also; while in small doses it certainly acts as a mild tonic, aiding digestion and assimilation. Upon this ground, we have administered it in cases of *chronic diarrhœa, with benefit*, combining it with rhubarb, in small doses, and repeating it every four hours. As a simple tonic, its therapeutic process evidently depends upon its bitter principle and power to enrich the blood, while it evidently has further action upon the nervous system. When given in large doses, it does not produce in many instances that peculiar condition which quinia does, commonly called cinchonism; while if it does in others, only to a very limited extent.

While we do not regard salicine as efficacious or valuable an agent as quinine, we nevertheless regard it as a very valuable addition to our materia medica and to the practitioner, who supplies his own drugs, and in many instances gives both his labor and drugs gratis. It would be a means of saving, as it is only about one-third the price of quinine. We would not, however, urge such a reason as an apology for its use, if we did not have confidence in its virtues as a therapeutic agent. We employ it in powder, combined with an equal amount of white sugar, or in pill, or dissolved in hot water. As it is perfectly soluble in alcohol, it could be employed as a tincture. No substance as a simple salt or chemical product, is more free from impurities than salicine, and this demonstrates the very valuable aid of organic chemistry to the therapeutist in freeing many vegetable preparations from all inert principles by extracting the active, thereby lessening the dose and making medicines more agreeable to the patient. Upon the authority of Von Dem Bush, a German physician, salicine can be employed in cases where there is a heavy secretion from mucous membranes. He instances bronchitis and leucorrhœa, in which cases he used it in decoction with polygala amara, or Iceland moss. We have never as yet employed it in such cases, but believed it to possess alterative powers over mucous surfaces, as instanced in the fact that it will aid digestion and assimilation, where there is atony of the digestive organs. From what we have said, from our own use of the drug and the testimony of others, we feel justified in drawing the following conclusions:

1. Salicine is a safe and reliable tonic and antiperiodic, second in favor to quinia.
2. It can be used in cases where there is gastric irritation to better advantage than quinia.
3. It is an alterative to mucous surfaces, and can be safely employed as such.
4. It deserves to be more freely used by the profession, as a matter of economy to both physician and patient.

Medical use of Sub-nitrate of Bismuth.

Dr. Q. C. Smith, of Cloverdale, California, says in the Nashville *Medical Journal*, September, 1874:

We wish to give the profession the benefit of our experience with this remedy, in certain diseased conditions and uncomfortable ailments.

We often find it, in combination with other remedies, a very efficient remedy for diarrhœa, especially as it occurs in children during dentition, and in warm weather.

Some of our favorite prescriptions, containing it, are as follows:

℞. Sub-nit. bismuth, gr. 3 to 5
Salicin, gr. 1 to 2
Pow. Jam. ginger, gr. 1 to 2 M.
Ft. pulv. S.—One powder every one, two, or three hours, as occasion may require.

Another:

℞. Sub-nit. bismuth, gr. 4 to 6
Pow. sulpho-carbolate soda,
Pow. cloves, aa gr. 1 to 2 M.
Ft. pulv. S.—One powder every one, two, or three hours, as occasion may require.

This is an admirable remedy where the alvine discharges are fœtid. And, just here, we would *incidentally* note the fact, as pertinent to the pathological condition under consideration, that we have used the fluid extract of ergot, in diarrhœa attended with *hemorrhage* from the bowels, with very gratifying results.

A favorite prescription with us, containing the ergot, is this:

℞. Fl. ext. ergot,
Strong decoction logwood chips, aa ℥i. M.
Ft. sol. S.—A teaspoonful every one, two, or three hours, as occasion may require.

The decoction of logwood should be prepared in a glass or porcelain vessel. But to return to our text.

Sub-nitrate of bismuth, used as a drying powder on the person of young babes, in the place of the ordinary starch-bag, will be found to be incomparably superior to starch for preventing and curing chafing and ulcerating surfaces. Carbolic acid soap, for the toilet, should always be used for washing young babes, as it will prevent many skin eruptions to which they are so liable.

Sub-nitrate of bismuth is an excellent application for ulcerating surfaces, dusted freely over the part.

Sub-nitrate of bismuth is a very efficient catarrh snuff. Where the disease only affects the nasal passages and frontal sinuses, it will often effect a cure in one or two weeks, especially if the case is not of long standing. The mode of using it for nasal catarrh is to take a pinch of the powder, having thoroughly blown the nose, and thrust it as far up one of the nostrils as convenient, closing the other nostril, and taking several short full sniffs, liberating a portion of the powder at each inspiration.

Apply to each nostril, in the same manner.

The frequency of the application of the remedy should be governed by the severity of the case. I usually direct the patient to use the medicine at least as often as the nose needs blowing, and always immediately after that operation.

Physiological Effects of Delphine.

The *Chicago Journal of Mental and Nervous Disease*, October, 1874, states that in a communication offered to the *Société de Biologie*, July 25, M. A. **Rabuteau** details two experiments with this alkaloid, of which he remarks as follows:

These two experiments establish very clearly a relation between the effects of delphine and those of such poisons as act in the manner of curare, such as the calabar bean, aconitia, the iodides of tetramethylammonium and of tetralammonium. We see, in fact, first the difficulty and next the impossibility of voluntary movements without any abolition of muscular contractility, and finally death by asphyxia or syncope, according to the rapidity with which either the dilator nerves of the chest or the automotor ganglia of the heart are paralyzed. The elevation of the temperature in the dog which was the subject of the first experiment, the presence of sugar, in small amount it is true, in the urine of this animal, are likewise symptoms that we observe in cases of poisoning by curare.

Dr. Rabuteau next gives a comparative statement of the appearances observed in frogs poisoned respectively with delphine and veratrine, two agents which have been classed together erroneously, veratrine being a muscular poison. This he sums up as follows:

From what precedes, it results: (1) that delphine does not act on the muscular system, but on the nervous system, after the manner of curare; nevertheless it seems to diminish the sensibility in a notable manner; (2) veratrine acts on the muscular fibre which it first tetanizes, and then abolishes its contractility, as has been well shown by our colleague, M. Prevost, in 1868, who is moreover well assured that the muscular rigidity does not depend on any action exercised on the spinal cord, as is the case in poisoning by strychnine. It does not seem to diminish the sensibility as much as veratrine.

Experiences with Guarana.

The following experiences are given by Dr. A. J. **Eidson**, of Coatesville, Mo., in the *American Medical Weekly*, October 10, 1874:

In the spring of 1870, while I was practicing in Schuyler county, Illinois, Colonel Dutton, late of the Confederate service, and who had resided in South America since the war, returned on a visit to his sister, the wife of Mr. William Noel, bringing with him a quantity of guarana, an infusion of which he said was used by the natives as a beverage, prepared similarly to our coffee. They also used it to prevent sleep and maintain their powers of endurance when on long journeys and deprived of food.

Many of the young people of our neighborhood, myself among the number, tested its merits when attending parties or watching with the sick, and we found that we could be up all night without becoming sleepy or fatigued, and that this could be continued for several nights in succession. This was my first knowledge of guarana, or paullinia, as the Colonel called it, and there was soon quite a demand for it in that community. It was in cylinders an inch and a half in diameter, and from eight to twelve inches in length; "reddish-brown in color, very hard, and of a marbled appearance when broken," but soon becoming soft in the mouth or when mixed with water; mildly bitter to the taste, with a resemblance to coffee, and slightly astringent. A farther trial proved that its effects were to keep up the strength, prevent exhaustion, headache, hunger, and sleep; producing a slight exhilaration of mind, replacing despondency with hope and cheerfulness; and it accomplished all this without the individual being conscious of any drug result—he felt perfectly natural, but remarkably well and fresh.

My location, at that time, was in a highly malarial district, and I was suffering alternately from frontal neuralgia and chills, and had worn out quinine, arsenic, and most of the antiperiodics. While using the guarana I had neither. The supply of the medicine becoming limited, and not knowing that it would ever be in the general market after once exhausted, I was not disposed to experiment much farther, and will only mention two cases of opium poisoning treated successfully with it; one was a child a year old, to whom an overdose of tincture of opium had been given; the other a young lady who had taken four or five grains of sulphate of morphia with suicidal intent.

During the last few months I have used the fluid extract of guarana with good effect in spinal irritation, hysteria, delirium tremens, hypochondriasis, and migraine. I have cured one obstinate case of chronic diarrhœa, associated with sun-pain, in an old person, where everything else had failed. The medicine was used as a drink, prepared from lump guarana, as coffee, and taken with the meals three or four times a day. All other medicines were discontinued. I have also used it in stupor, occurring in a case of typhoid fever, with complete success in forty-eight hours. In sick headache it is the remedy *par excellence*, and if it had no farther application, it is as indispensable in the list of curative means as any that we possess.

The Employment of Phosphorus.

We extract as follows from a report on Materia Medica and Therapeutics in the Dublin *Journal of Medical Science*, August, 1874:

The internal use of phosphorus is at present attracting a good deal of notice, and its admitted tendency to irritate the alimentary tract has given rise to a number of formulæ for its exhibition, with the proposed object of avoiding this drawback.

Some years since Dr. GUENEAU DE MUSSY advocated the employment of the solid phosphide of zinc, as agreeing better with the stomach than any other preparation of phosphorus, and this compound has been adopted by Dr. Hammond, of New York, and by Dr. Routh, of London. This phosphide, although insoluble, is easily assimilated, and may be given in doses of 1 gr. three times a day. But, since it acts only after decomposition by the acids of the stomach, it follows, as Dr. Thompson points out, that many doses might accumulate, and remain unchanged, if the secretions of that organ were alkaline. If the accumulations were then suddenly brought into contact with acid, symptoms of poisoning would occur—an accident which happened in a case noted by Professor Gubler. The obvious and very necessary precaution consists in the use of an acidulated tonic with each dose of the drug, or the dietetic employment of lemonade during the medication. Dr. Routh further recommends the chloro-phosphide of zinc, prepared by bringing pure hydrochloric acid into contact with phosphorus and arsenic in a fine state of division. It is a clear yellowish-green solution, of pleasant taste, and contains 10 grs. of arsenic and

16½ grs. of phosphorus to the ounce. The dose is from 3 to 5 m. Dr. Ashburton Thompson's formula for an alcoholic solution of phosphorus was given in the last *Report*, and he has remarked that the fluctuations in popular favor which the history of phosphorus presents, suggest that an element of danger attended the very great remedial properties it was found to possess. Moreover, others beside himself had found that a dose of phosphorsus, poisonous when dissolved in oil, might be far exceeded if dissolved in ether and alcohol; while the excellent results obtained with the latter preparations testified to their activity. A male adult took half a grain of phosphorus in ether every twenty-four hours for nine days, and yet died of less than 1 gr. dissolved in oil, and taken during thirty-five hours (Solin). Phosphorised cod-liver oil, according to Dr. Thompson, may be given with the same safety as phosphorised ether or alcohol, and in the same doses, whereas the vegetable oils (almond or olive) generally employed are dangerous solvents, owing to their ready absorption of oxygen, and consequent partial oxidation of phosphorus, probably into hypophosphorous acid. The solutions of phosphorus in vegetable oils do not, therefore, afford a safe means of exhibiting free phosphorus. Dr. Thompson states that these rules, though simple, had never been formulated before, and he believes that ignorance of the facts on which they are founded had converted on free phosphorus a reputation for treacherously poisonous qualities, even in remedial doses, appertaining, in reality—in the case of phosphorised vegetable oil at least—to an unsuspected admixture of combined oxidised phosphorus.

In the treatment of *neuralgia*, Dr. Bradbury has, on the whole, met with considerable success from the use of phosphorus in capsules, and he relates two cases of trigeminal neuralgia, in which a rapid cure seems to have been effected, in one case by two doses, 1-30 gr. each, of phosphorus.

The Use of Gelseminum.

Dr. M. W. Morton, of Vernon, Alabama, writes to the *Southern Medical Record*, August, 1874:—

Gelseminum, when indicated, is one of the most valuable remedies in use, and when not indicated, is an unsafe article. I have used it for quite a number of years, and invariably prepare my own tincture, and the best time to collect the root is April and May. So soon as gathered and washed should be bruised, and for every viij. oz. of the root add oj. of alcohol, 70 per cent., and set aside for two or three weeks, after which pour off and filter. This forms a tincture of a beautiful violet-tint; it has a peculiar odor, somewhat resembling that of new honey, and a faint, peculiar, not unpleasant taste.

The indications for the use of tincture gelseminum:—*Flushed face, bright eyes, contracted pupils.* Where ever you find the above, it does not matter what you call the disease, it is *the* remedy. It is the remedy in determination of the blood to the brain; quiets irritation and gives rest; it lessens the frequency of the heart's action, and removes obstruction to the free flow of blood; hence is a sedative. It also increases the secretions in the same way. It is contraindicated where the circulation is feeble and there is tendency to congestion. Never give it if the eyes are dull, pupils dilated, and the countenance expressionless.

The effects of an overdose, or where the system is thoroughly under the influence, is dullness about keeping the eyes open; double vision and blindness, sometimes giving rise to difficulty in deglutition. These symptoms will pass off very readily by the inhalation of ammonia, and stimulants internally.

'Some persons will feel the effects of very small doses, whilst others can take with impunity much larger. Hence, the best plan of giving it is in small doses, often repeated; increase or diminish, according to effect. I generally prescribe for an adult gtta. x. to xx., every one and a half or two hours; children, gtta. iij. to v. There is no danger in *gelseminum*, when the indications are as set forth above. A majority of the *cases will need no other remedy.*

The Physiological Action of Propylamine and other Derivatives of Ammonium.

The *Comptes Rendus de la Société de la Biologie de Paris*, quoted in the *Medical Times and Gazette*, August, 1874, contains an account of some experiments made by M. Laborde on the physiological action of the substances above enumerated, with especial reference to the great use which has lately been made of propylamine and its allies in France in the treatment of acute rheumatism. His results seem, as he himself remarks, to be but little in accordance with empirical views of their properties. The conclusions arrived at are as follows:—

1. Propylamine in the crude form, or trimethylamine, both act primarily on the central nervous system, especially its spinal portion, and produce, in physiological doses, excitement and increased functional activity of the cord, so as to re-act on the respiratory and circulatory systems, and to accelerate the heart's action. In poisonous doses depression follows this excitement, and at this period only (that is, if the doses are excessive) there is a retardation of the pulse and depression of temperature. Death results from cardio-pulmonary asphyxia. If trimethylamine be given to a dog by the stomach, it will be tolerated up to a dose of three grammes without vomiting, but by its local irritation catarrh of the mucous membranes of the stomach and duodenum is produced, accompanied by hyperæmia and superficial ulceration; and if it be injected into the subcutaneous tissues it produces true sloughs. It can also give rise to hæmaturia from congestion of the kidneys.

2. The physiological action of chloride of trimethylamine is substantially the same as that of its base, but it differs from it by slighter intensity, which scarcely attains that of half a dose of the other. Neither salt should be regarded as acting directly on the muscular tissues or as true cardiac poisons.

3. Trimethylamine and its chloride are in their physiological action on the nervous system rather analogous to the ammoniacal compounds in general, especially the chloride and acetate of ammonium; but while the latter salts even produce tetanic convulsions, trimethylamine and its chloride scarcely do more than produce muscular trembling and an exaggeration of the principal functions of the spinal cord.

Trimethylamine and its chloride (especially the former) are thus general functional excitants, and they rouse and accelerate the circulation more than they depress or calm it, for depression only succeeds large and long-continued doses, which injure the system by irritating the digestive and urinary organs. We cannot therefore look on them as true antipyretics, and they are also much inferior in respect of their exciting and stimulating action to the chloride and acetate of ammonium, and require to be given in much larger doses than the latter.

The trimethylamine was, in M. Laborde's experiments, injected into the dog's stomach by means of a sound, in doses of one to three grammes dissolved in fifty grammes of water, and the dose was repeated for twenty days.

Action of Digitalis.

Prof. Sée, of Paris, in a lecture translated in the *Irish Hospital Gazette*, October 1, 1874, remarks:—

The singular effects of digitalis may be tabulated in the following synoptical form:—

I. *Ordinary Therapeutic dose.*

1. Slackening of the pulse.
2. Increase of the intra-vascular pressure.

II. *Large or frequently repeated doses.*

1. Quickening of the pulse, terminating in slackening.
2. Diminution of pressure, giving place to augmentation of the intra-vascular pressure.

III. *Poisonous dose.*

1. At the outset slackening of the heart, the muscular fibre of which is affected.
2. Continued diminution of vascular pressure.

Digitalis is a peculiar poison, which is distinguished from most others by its being cumulative; that is, when successive doses of it are given their effects accumulate. Very few drugs possess similar cumulative effects. The smallest doses, if repeated, may eventually produce the effects of the poison. I insist upon this point, for this marvelous and dangerous medicine can never be advantageously administered without a previous knowledge of these properties.

There is one more fact to which I believe it useful to call attention. I wish to speak of change in the contractile force of the heart and in the quality of the pulse. Under the influence of digitalis, at the same time that the heart slackens, its beats become more energetic, and, perhaps, it may be even in consequence of this increase of force in the cardiac contractions, that there is elevation of the vascular pressure. On the other hand, the pulse becomes dicrotous, has a double beat, and if you look at a sphygmographic tracing of the radial artery of an individual under the influence of digitalis, you will find that it is on the descending line that there is the dicrotism. This descending line only rises as high as its point of departure every two or three pulsations; in a word, it does not perfect itself. There are two or three ventricular systoles which repeat themselves before the heart has succeeded in accomplishing a diastole. We sometimes find a pulse in man which is double or triple, in fact, polycrotous. We should pay great attention to this derangement in the rhythm of the pulse, for this latter phenomenon is very frequent; it is met with when digitalis is given in therapeutic doses, and when these relatively small doses are continued for a certain length of time. Inversely, you will see that digitalis will cause these same phenomena of arythmia, which depend upon disease of the heart, and which offer the most striking resemblance to those which digitalis itself gives rise to in a healthy individual, to disappear.

Mode of Action of Some Emetics.

M. Chouppe, says the *Lancet*, October 10, 1874, has lately made some interesting observations in M. Vulpian's laboratory on the action of certain emetic substances—namely, tartar-emetic, apomorphine, and ipecacuanha, with its active principle, emetine. Two opinions have been expressed in regard to the mode of action of these substances when introduced into the general circulation, some conceiving that they only act at the moment of their elimination on the peripheral extremities of the nerves, whilst others believe that they act whenever they accumulate in sufficient quantity in the blood circulating in the medulla oblongata to start the co-ordinated movements which produce vomiting. M. Chouppe's experiments lead him to think that both views are sometimes true, sometimes erroneous. He divided the pneumogastric nerves in dogs, and after permitting the efforts to vomit, resulting from the operation, to subside, he injected subcutaneously, or into the veins, an emetic dose of one or other of the above substances. He found that the previous section of the pneumogastrics had no effect in the case either of the tartar-emetic or of the apomorphine, vomiting occurring just as freely as when the nerves were intact, whilst, on the contrary, with ipecacuanha or emetine no vomiting occurred in any instance. So, too, if, after emetine had been injected and some time had been allowed to elapse, a little tartar-emetic were injected, vomiting at once took place. A point incidentally observed in these experiments is worthy of note, namely—emetine causes vomiting much more quickly when it is introduced into the stomach than when it is injected into the veins, whilst exactly the opposite occurs with apomorphine and tartar-emetic. The conclusion to be drawn from M. Chouppe's experiments seems to be that tartar-emetic and apomorphine act both on the central nervous system and upon the gastric mucous membrane, whilst the action of emetine seems to be limited to the peripheric extremities of the vagus.

On Rhamnus Frangula.

Dr. J. S. Unzicker says, in the Cincinnati *Lancet and Observer*, November, 1874: Several communications have lately been published in our journal, on the advantages of the R. frangula as a laxative or cathartic.

Having used this remedy for the last eight or ten years, I can not say that it possesses any advantages over other articles of that class for that particular purpose; but in the cure of hemorrhoids it certainly stands unrivaled, and holds the same rank in chronic piles, as potassii tartras does in those of a more acute or inflammatory form. Both, when given in their proper place, quickly remove all portal congestion, constipation, and all that disagreeable feeling connected with this complaint. The frangula ought to be given at bedtime, either as an infusion or decoction—ʒj to ʒij to four ounces of water—or from one to two teaspoonfuls of Squibbs' fluid extract. Thus given, it acts more mildly and with less annoyance to the patient than when given in morning. If, however, the above dose should produce more than one or two soft passages, the dose must be reduced, and purging avoided, as the latter would only aggravate the trouble and do no good. I have known some of the most inveterate cases, which had for years resisted the treatment of some of our most eminent physicians, cured by the continued and judicious use of the frangula for some length of time.

R. frangula must not be confounded with the *R. cathartica* (buckthorn), so much used in England. The latter is a thorny bush, of which the berries only are used. The former is an insignificant shrub; grows in wet and swampy woods, sometimes hanging over wet rocks. It grows from six to ten feet high, the main trunk about three inches in thickness. The Germans call it "*Faulbaum*," owing to the peculiar disagreeable odor of the leaves and branches. The bark is only used in medicine.

Action of Eucalyptus Globulus.

Dr. T. B. Talbott, of Sidney, Ohio, says in *The Clinic*, November 14, 1874: Having seen but little written on the action of eucalyptus globlulus in the treatment of remitting and intermitting fevers, I thought I would give you a history of a few cases that I had been trying it in in the last few months, for the benefit of your readers that have not had any experience in the use of it. The following is a brief history of the cases:

Mrs. V., aged 38, a farmer's wife, very much emaciated, having been suffering from intermittent fever for several months, which had assumed the double quotidian type. For the last ten days she was not able to be out of bed. The paroxysms came on regularly at 7 a. m. and at 10 p. m., and were accompanied with very slight chilly sensation and some coldness of the feet, followed by very high fever and profuse perspiration. I gave her very large doses of quinine without any effect; also gave arsenite of potash with the same result. I then gave gtts. lx. of fl. ext. eucalyptus every hour and a half, commencing in the sweating stage and continuing it until the time for the next paroxysm. She did not have any return of the attacks, and has continued well ever since.

Mr. P., aged 26, German, baker, had been treated for remitting fever for eight days by my friend Dr. B. of this place, and he had been giving him very large doses of quinine without interrupting the paroxysms. He became dissatisfied and sent for me. I gave him gtts. lx. every hour and a half of fld. ext. eucalyptus, commencing during the sweating stage and continuing until he had six doses. He had no more fever and commenced his usual occupation in a few days.

Mr. and Mrs. S., middle aged, moved to this place from Port Jefferson, both suffering with intermittent fever. He had been laboring under the quartan type for eight months, and she had been troubled with the quotidian type for the last two years more or less, and had had it for the last six weeks regularly. She was pregnant, seven months advanced, anæmic, with a sallow complexion, spleen very much enlarged, reaching about four inches below the free margin of the ribs. Before trying the eucalyptus I gave grs. xx. of quinia in the sweating stage, without any effect in either case. I then opened the bowels in both cases with hydrarg. chlor. mit. and followed it with the usual doses of eucalyptus; there has been no return of the disease in either case.

These experiments, although confined to a small number of cases, seem to show that there are cases in which quinine proves inefficacious. In such cases it is important to possess a remedy that will answer. And I believe that eucalyptus possesses that power. And besides it does not cause those distressing head troubles that belong to quinia, and is not nearly so disagreeable to the taste.

The Action of Nitrite of Amyle.

Dr. Robert Pick says in the Cincinnati *Medical News*, September, 1874 :

1. The nitrite of amyle produces relaxation of the entire muscular system of the body; it acts, however, prominently upon the organic or nonstriated muscular fiber.

2. This action is particularly well expressed in the muscular coat of the bloodvessels; a few drops being sufficient to occasion, speedily, and with unerring certainty, a very marked dilatation of the vessels, especially to the upper part of the body. Simultaneously the tension in the vessels is diminished and the action of the heart accelerated.

3. This effect, in all probability, is due to a direct action of the ether on the nonstriated muscular fiber of the vessels.

4. In consequence of this action, the nitrite of amyle must be looked upon as a valuable medicinal agent in those diseases which depend upon either spasm of the bloodvessels or excessive vascular tension, as well as, perhaps, also in those, which are due to spasm of other muscular structures, both nonstriated and striated; especially, therefore, in cases of hemicrania, angina pectoris, epilepsy, eclampsia, spasmodic asthma, trismus and tetanus, etc. It is never to be forgotten that not unfrequently this agent has merely a palliative effect.

The numerous spasmodic affections of childhood, it is believed, likewise, offer an extensive field for the employment of this remedy. So far, however, no clinical observations on this special subject are at hand.

A few words more concerning mode of administration. The best way of administering the nitrite of amyle is, undoubtedly, by inhalation. A few drops of the liquid are poured upon a cloth, or upon blotting paper, or cotton, and the article so charged is held before the nose and mouth. The remedy may also be administered by the mouth and by subcutaneous injections. Experience has taught, however, that the effect thus produced does not equal that obtained from inhalation; hence this latter mode of administration is to be preferred to all others, and not only because the remedy acts with greater energy, but also because no digestive derangements are occasioned thereby. If the remedy is to be given internally, it is best exhibited upon sugar—from two to five drops constituting a dose. The commencing dose for children should not exceed *two* drops. It may, however, be gradually increased to *five*, *ten* and *fifteen* drops per dose. This increase in the size of the dose, by long continued use of the remedy, is rendered necessary, for the same reasons, probably, that are given in reference to the demand on the part of the organism for increasing doses of narcotics in general under protracted use, viz: that the system soon becomes accustomed to the substance and tolerant of its presence.

Chloral, Morphia and Atropia in Combination.

The *Clinic*, October 31, 1874, states that at the Cincinnati Academy of Medicine, Dr. **Bartholow** read a very interesting paper on the combined administration of chloral, morphia and atropia, and illustrated the physiological effects by experiments on rabbits. A solution of chloral was injected under the skin of the first rabbit. A state of profound anæsthesia soon followed. The action of the heart was extremely rapid, but quite feeble. This was shown by the following instrument. A straw about a foot in length is armed at one extremity with a needle, which is thrust into the heart of the animal. To the other end of the straw a bit of paper is attached and the vibration of the distant extremity indicates the force of the heart's action. A solution of chloral, morphia and atropia was injected under the skin of a second animal. In this rabbit the anæsthesia was not so profound, the morphia counteracting the depressive effects of the chloral. The heart's action was also shown to be much stronger in this case. On irritation of the Schneiderian membrane the force of the heart's action was much increased and the pulsations reduced in number, and it was shown that on carrying this irritation to a sufficient extent the heart would cease pulsating altogether. Dr. Bartholow said he had obtained good results from the combined administration of these agents in neuralgia and other painful diseases. and regarded their beneficial effects when combined as much greater than when used separately.

Phytolacca in Mammitis.

Dr. L. **Alexander**, of Yorkville, South Carolina, writes to the *Atlanta Medical and Surgical Journal:*

As the advancement of our profession is, in a measure, due to the interchange of views, through the medium of medical journals, and feeling it the duty of every practitioner to place in the hands of his brother chip (after due trial) all new remedies, I herewith give a brief statement in regard to phytolacca decandra, believing that in it we have a most potent remedy in all mammary inflammations.

Case 1.—Mrs. F., whilst nursing her sixth child, suffered for several days with pain, more or less severe, in both breasts. Thinking that all would probably end well under the use of domestic remedies, medical advice was not solicited until the morning of the 8th day. Having been warned by a severe chill the previous night, she concluded that a physician should be summoned. Upon my arrival I found the patient suffering with high fever. The mammary glands were much distended, and bowels constipated. She was suffering great pain and mental anxiety. She was thoroughly convinced that no means could avert the impending trouble, and insisted that poultices should be applied to encourage pointing. I prescribed a saline aperient, followed by the fluid extract of phytolacca decandra, in fifteen-drop doses, every three hours. At my next visit. the following day, I found the glands soft throughout; no pain, and the mind greatly relieved in regard to the matter.

Called again on the 14th. Found same condition as at first. Continued prescriptions as before, with like result. On the 21st, while on a visit to her mother, the same difficulty arose for the third time, and as it was not convenient to procure the above medicine, our old remedies were brought into play, which, after a few days of fruitless efforts to abate the suppurative process, compelled a resort to the lancet.

Case 2.—Mrs. C., now nursing her fourth child. With each of her first three children all efforts to allay inflammation of the breast proved useless. The lancet was consequently used, leaving her health much impaired. With this last child, immediately upon the appearance of hardened nodules in the breast, phytolacca decandra was prescribed, as in Mrs. F.'s case, with entire relief in about thirty-six hours. She now keeps the medicine in the house, and fears no further trouble from that source.

In each of the above cases the quantity of milk was greatly lessened by the remedy.

The Hydrocyanate of Iron.

Dr. W. C. **Fleming** writes of this drug to the *Journal of Materia Medica*, July, 1874:—

A little more than eight years ago, I used the Hydrocyanate of Iron, for the first time. The case was Epilepsy, in a German lad, aged about thirteen years. He had been suffering from the spasms, at short intervals, for over four years, and had been subjected to a great variety of treatment, with little or no benefit, the spasms occurring once in five to seven days, and very severe.

All the usually indicated remedies had evidently been exhausted in this case, and it was altogether an undesirable case to assume charge of. All the varied treatment that had been brought to bear upon the case did little or nothing more than to alleviate the frequency and intensity of the spasms a very slight extent.

Having observed the praises bestowed upon this preparation, Hydrocyanate of Iron, in (I think) the *Philadelphia Medical and Surgical Reporter*, I determined to try its efficacy in this case. I therefore at once procured a bottle of your preparation of the drug, and commenced its use, without resorting to any other usual remedies.

I administered it in one grain doses, three times a day, triturated with *Saccharum Lactis*. I found at the end of a fortnight, its action was perceptible, that relief was promptly afforded. Being thus highly gratified with its action, I persevered with it, commencing with two-grain doses prepared as before, with the addition of gr. ss. (half grain) of Valerianate of Quinine to each dose.

This preparation, at the expiration of three weeks, greatly modified the spasms, only one of which occurred during that time, and it was light, and comparatively unimportant. Being encouraged by the combination before alluded to, I now compounded the following formula, with perfect success, ultimately breaking up the spasms entirely.

℞.	Hydrocyanate Iron,	ʒij.
	Valerianate Quinia,	
	Cyanuret Zinc,	āā ℈j.
	Ext Hyoscyamus,	ʒij.

Mix. ft. Pil, div. in Pil. No. 120.

Sig. One pill at 10 a. m., 3 and 9 o'clock p. m.

After pursuing this treatment the spasms only occurred once in four to five weeks, and were of a trivial character as regards severity. It must moreover be remembered that the patient had been under the influence of the remedy long before administering so large doses.

On the initiatory treatment of similar cases, I would advise the division of the formula into 240, or 250 pills, then give two or more at a dose when required.

I think the patient had but three or four unimportant spasms after use of this formula, and those occurring only at intervals of seven to nine weeks. So at the expiration of nine to ten months, the case was regarded as cured. I however advised the continuance of the remedy. One pill a. m. and p. m. for a month or six weeks, then one at bed time only for the next month, and thus *gradually* suspended treatment.

I saw the patient occasionally for three years subsequently, and the report was always favorable, and no return. His former stupidity and dullness had disappeared, and he seemed a bright, smart and intelligent youth.

The result from the primary start, was so gratifying, that I unhesitatingly depend upon this combination as the "sheet anchor" in epilepsy, and have not found it deficient in any instance, although having used it in many cases. Some are no doubt incurable and all are exceedingly intractable, but this remedy *never fails* to relieve, and *often* cures, and furthermore, I can frankly say, its usefulness is by no means confined to epilepsy. It is invaluable in facial and cranial neuralgia, vertigo, hysteria, gastric and bilious headaches, etc., also chorea, and the whole brood of kindred ills, *Neuro-Cerebral.*

I continually employ the Hydrocyanate of Iron and Valerinate of Quinine, Pulv., with the many forms of cerebral embarrassments, and with the most gratifying results. I am never without it in my office, and regard it as a prompt, efficient and invaluable remedy in all this type of disease.

III. ANÆSTHETICS.

Influence of Anæsthetics on the Sexual Organs.

The Clinic quotes from the *Revue Medicale* the following observations:

A physician, called as an expert before a United States tribunal, made the following declaration: "A woman under the influence of anæsthesia is more liable to conception than when sexual intercourse has happened by force, and I concur in the opinion of Dr. Beck, expressed in his treatise on medical jurisprudence, that women may conceive during anæsthesia. The relaxation it produces facilitates conception."

This point seems to me established; but I desire to add an observation which I have made in my practice, and one that it deeply concerns physicians to know. It is well known to-day that occasionally, under the influence of ether or chloroform, an excitation of the sexual organs is produced, and a feeling is excited in the mind by this sensation which may make a woman believe that she has been subjected to violence.

The first case of this nature which I witnessed myself occurred during a delivery. The woman, placed under chloroform, experienced sensual sensations so vivid that she accused me of having violated her, and called on her husband for protection. But he had been with her all the time, as well as a dozen women who had never quitted the chamber.

In a second case, I was administering chloroform to a woman to have a tooth extracted, but the physiognomy of the patient showed an expression of venereal excitement so pronounced that I hastened to call in her parents. On awakening, she seemed astonished to see herself surrounded by her family, and clearly exhibited what her impressions had been.

On another occasion, a lady of a certain age entered my office, in a state of high excitement, and related that she had gone to her surgeon to have a trivial operation performed, to relieve the pain for which she had taken chloroform, and the surgeon had abused her while under its influence. I was persuaded that she had deceived herself, and on examining all the circumstances, perfectly proved to her that she had been subject to a delusion.

The moral is, that physicians should never administer ether or chloroform except in the presence of witnesses.

Auto-Administration of Chloroform.

To do this properly, Dr. Walter Lane, of Wilmington, N. C., makes some suggestions in the *American Medical Weekly*, July 11, 1874:—

Having suffered some time ago with very severe attacks of hepatic colic, induced by the passage of biliary calculi, and having had occasion many times to administer this agent to myself, and often when I was alone, I thought I would offer, through your journal, to those in the habit of taking chloroform, a safe and simple method.

I take a small paper pill-box filled with raw cotton, or lint, on which I pour a sufficient quantity of chloroform to saturate well, then lying on the back with the head slightly raised, with neck and chest exposed, and with a light handkerchief thrown over the box, the latter is held by one or both hands to the face in an elevated position, with the elbows suspended as it were above the chest. As soon as anæsthesia is produced, the arms, along with the hands containing box and handkerchief, fall upon the body, thereby avoiding all tendency to suffocation and excessive dose of the anæsthetic.

This manner of taking chloroform I have recently adopted, without the least unpleasant consequence, when suffering the most violent pain our frames are subject to.

The Administration of Nitrous Oxide and Ether.

At the meeting of the British Medical Association, Mr. Clover exhibited an apparatus for administering anæsthetics. The pungency of ether-vapor, when not largely diluted with air, and the frequency of violent delirium when it is so diluted, were serious objections to its use. Mr. Clover's apparatus supplied, first, pure laughing gas, which was not unpleasant to breathe; and afterwards supplied ether-vapor gradually by turning a dial on the face-piece. This was done with the hand that held the face-piece, and consequently the other hand was at liberty to feel the patient's pulse. Less ether was required than when no gas was used; consequently, less of it was absorbed by the tissues of the body, and recovery from the effects of the anæsthetic took place more quickly and with less intoxication.

Mr. Lawson Tait felt the necessity of obtaining a pleasant, safe, and easily given anæsthetic. He differed from the author (Dr. Sims) of the paper as to the cause of death from inhaling chloroform being due to cerebral anæmia. He thought it more probable that the explanation lay in some poisoned condition of the blood. There was no evidence to show that death from chloroform ever occurred to an infant or to a woman during labor.

Dr. Humphrey thought the question involved was one of the first moment. The administration of chloroform greatly increased the responsibilities of operative surgery; and there were few surgeons who had not experienced that dreadful suspense in cases of chloroform narcosis where death appeared imminent. He thanked Dr. Sims for the additional hint as to what to do in cases such as these. Dr. Humphrey thought that allusion had not been made to those cases where death took place at the early part of the administration, preceded with violent convulsions. He considered that such cases could not be attributed to cerebral anæmia. He agreed with Mr. Tait that an explanation was to be sought in some altered condition of the blood. He suggested that nerve-exhaustion might explain this, violent excitement being followed by correspondingly intense depression. He had observed in cases of death following upon chloroform narcosis, that the blood was of a consistence like treacle.

Mr. Baker mentioned that he always gave the patient a dose of brandy before proceeding to administer chloroform, with very good effect.

Mr. Lund alluded to the importance of always having at hand, when administering chloroform, means for applying galvanism, and illustrated this by cases which had come under his notice at the Manchester Infirmary.

Sir J. Rose Cormack, in closing the discussion, remarked that the papers on chloroform which had just been read afforded a most admirable opportunity of eliciting the views of many present, who could speak with authority on momentous practical points mooted by the respective authors. As the remarks of several speakers were not explicitly applied to one or other of the two papers read in which inversion was recommended, he hardly knew whether he was called upon or not to say that he attached less importance to inversion than Dr. Marion Sims, and that he thought it would be a dangerous mistake unduly to exalt its efficacy. In cerebral anæmia from any cause, the patient ought, as a rule, to be placed in the horizontal position, with the head low and the feet raised about a foot. The cases in which inversion is called for are rare—quite exceptional. It ought, moreover, to be performed most carefully and watchfully—tentatively, in fact. Too long-continued inversion may prove very dangerous by causing distension of the right side of the heart, which will in turn cause and maintain a cessation of its contractions—which causes death in a certain class of cases of fatal chloroform inhalation. This and other poisons, such as creasote and prussic acid, given in large doses, produce instantaneous paralysis of the right side of the heart; the auricle goes on receiving blood and is unable to get rid of it, so that by distension the paralysis (which in some cases would be only momentary) is rendered permanent; the result is probably that instant or very rapid death to which the French apply the term *sideration*—death by star-influence. This subject of quick death from sudden distension of the right side of the heart, he (Sir John) had investigated experimentally many years ago, and he still held to the views he had then published. Touching Mr. Clover's apparatus, it was unquestionably a most admirable invention, but its cost and complexity must prove fatal to its introduction into general use. It will be a great source of safety when the administrator is a steady, watchful man, familiar with the system and the instrument. On the other hand, it is apparent at a glance that negligence or hardihood might readily cause an untrained or self-sufficient administrator to turn the valves too much, too little, or not at all. The induction of complete anæsthesia for surgical operations can never be divested of all danger; but (in theory at least) by Mr. Clover's method the danger may, it would appear, be reduced to its minimum. Slow administration, using the conically arranged towel, and letting plenty of air be breathed, generally secure immunity from danger; and, under all circumstances, such precautions and appliances can be commanded. When cost and complexity are not objections, and when Mr. Clover's apparatus and a person who knows well its use are at hand, it ought to be employed. The remark which was made by Mr. Baker was of great importance—viz: that a moderate stimulant, a dose of wine or brandy, given shortly before the commencement of inhalation, greatly tends to prevent the anæsthetic vapor from producing a too depressing influence on the heart.

Experiments in Anæsthesia.

A writer in the *Medical Press and Circular*, September 30th, 1874, says:—

A large strong rabbit was put to sleep with chloroform, and the administration was continued until the animal had ceased to breathe. Tracheotomy was immediately performed: a tube connected with the double acting bellows was inserted into the trachea, and artificial respiration was set up. At the same time, the animal was suspended by its hind legs, with the head downwards. The artificial respiration was steadily carried out, in the most systematic manner, for fifteen minutes, but there was no sign of restoration of the circulation. The animal being still suspended, I next laid open the thorax, and exposed the lungs and heart. The lungs were discovered to be responding perfectly to the action of the double bellows; but all parts of the heart were at rest, except the left auricle: this, charged with red arterial blood, was contracting; the other parts were so dead that they failed to respond to the intermittent galvanic current, although to the same current all the voluntary muscles responded vigorously, and continued to do so for an hour. I observed that the right cavities of the heart, the auricle and ventricle, were tense with blood. I therefore let the animal down to the horizontal position; and when by this means the pressure of the blood was relieved, the auricle, and afterwards the ventricle, made a few feeble contractions under stimulation. No sufficient force was, however, exerted by the heart to make the blood traverse the pulmonic circuit; and, I may say, there was not at any time an indication of recovery.

How far the effect of inverting the body was useful in the two cases you have named, it is difficult to say, because in both artificial respiration was employed, and this in itself is so remarkable a means of restoration, that the effects of it have to be seen to be realized. By artificial respiration, I have resuscitated an animal *seven minutes* after its respiration had been stopped by the inhalation of chloroform; and there are cases in the human subject in which, after complete failure of the respiratory power from chloroform, artificial respiration has restored life, the body being retained in the horizontal position. It would be good practice, nevertheless, after the experience of the cases you have related, to add inversion or partial inversion of the body to the process of artificial respiration. The inversion should not be long sustained; if it be, the heart might be paralyzed on its right side from the pressure of the blood, but it should be alternated by return to the horizontal line, the artificial breathing being zealously sustained during the whole time.

In certain cases, where the right heart is demanding the stimulus of blood to enable it to contract with effect, the required supply of blood may thus be obtained from the veins below the heart, and the pulmonic circulation may be restored—a result, if it be instantly resorted to, that will almost of a certainty render artificial respiration successful in restoring life.

The Action of Anæsthetics on the Red Corpuscles of the Blood.

The Doctor draws attention to Professor Hüter's views, as stated in an article on stasis and embolism of the blood-corpuscles, published in the *Deutsche Zeitschrift für Chirurgie.*

Professor Hüter first refers to the changes which the red corpuscles of frog's blood, removed from the body, undergo on the application of various physical and chemical agents, such as glycerine, ammonia, carbolic acid, chloroform, cold, and heat. These changes, which vary in degree, but are essentially the same in character, consist in notchings and angular irregularities of the corpuscles, often reaching as far as the centre; folding together of the membrane of the corpuscles like a paper envelope; rounded forms are also observed; and sometimes there is nothing left but a nuclear structure, consisting, like the white corpuscles, of fine granules, and distinguishable from the white corpuscles only by its small size and frequently by its oval form. When the above-mentioned agents are applied to the frog's mesentery, this becomes reddened, and microscopic examination shows that the redness depends on dilatation of the vessels combined with a complete stasis of the corpuscles. The idea that this appearance can be explained by the action of the re-agents on the walls of the vessels is contradicted by the rapid occurrence and equally rapid disappearance of the stasis; the phenomenon is rather to be explained by the purely mechanical action of the changes induced in the red corpuscles by means of the various agents, even when applied to the epidermis. Under the microscope the corpuscles can be observed to become indented; first one, and then another, remains hanging on to the wall of the vessel, until at last all the capillaries in the irritated region, and even the adjacent small arteries and veins, are filled with notched red corpuscles (globular stasis). Both during the existence of the stasis, and especially during its rapid breaking up, single altered corpuscles, or large masses of them, may pass into the circulation, and, adhering to the walls of the vessels in other organs, again produce a stasis (globular embolism). This embolism does not lead to the form of distinct embolic plugs, but to diffuse multiplication of stases of corpuscles through the whole circulatory system; for the masses of corpuscles which pass into the circulation readily break up on meeting with any obstacle. The occurrence of embolism from blood-corpuscles in parts where certainly no change in the vessels has occurred, gives a certain degree of support to the assertion that the cause of globular stasis is to be sought in the change of condition of the red corpuscles.

In a pathological point of view, Hüter attributes great importance to the stasis of the corpuscles. He believes, in the first place, that irritants act essentially by producing stasis in the region to which they are applied; and that thus the inflammation induced by such means cannot be used in the explanation of the complicated phenomena of ordinary inflammations.

He maintains, further, that these researches are of great importance as regards pharmacology and toxicology. It is already known that many poisons, even those which do not act directly as blood-poisons, produce changes in the blood-corpuscles; and hence it may be supposed that they first produce changes in the form of the corpuscles, then globular stasis, and thus mechanically and indirectly lead to further changes. In experiments on frogs, it was very remarkable that all the agents which induced globular stasis also acted as anæsthetics; this is attributed by Hüter to the formation of embola of red corpuscles in the brain. In this way he explains the action of anæsthetics, such as chloroform, ether, and alcohol, the anæsthetic power of which is in proportion to the amount of change of form which they are capable of producing in the red corpuscles. The corpuscles of chloroformed rabbits showed very irregular forms; a notched contour, frequently with one or two large club-shaped processes. After anæsthesia with ether, the corpuscles were mulberry-shaped. After alcohol, there were only very slight indentations, and these could be observed in the stage following intoxication both in rabbits and in man. It follows from these observations that the administration of chloroform by inhalation is bad, as in this way the blood-corpuscles are altered while in the lungs, and globular stasis may be produced in these organs. Frogs can be brought into a state of anæsthesia by the action of chloroform-vapour on the skin of the thigh, while at the same time the part where the application is made assumes a redness which cannot be removed by pressure; and the blood-corpuscles removed from this part show the same changes (club-shaped processes, &c.) as in rabbits. This condition is present in the so-called chloroform-erythema which is oftened observed, especially in tender-skinned individuals. The beneficial action of lowering the head and raising the legs in cases of apparent death from chloroform, may be explained by the more easy breaking up of the globular stasis in this position, as the following experiment shows: The tongue and web of a chloroformed frog are spead out on a glass plate. If the animal be held for some time with the head upwards, extensive globular stasis will be observed in the vessels of the tongue, while the process is only beginning in the web; when the position is reversed, stasis sets in at once in the web of the foot and disappears from the tongue. Does the weight of the blood in the most dependent parts aid the slightly adherent corpuscles to pass through the vessels? In any case, it seems clear that chloroform is a very dangerous agent, in consequence of its strong action on the blood-corpuscles, and that therefore ether, the action of which is less powerful, is to be preferred as an anæsthetic.

GENERAL MEDICINE.

I. HISTORY OF MEDICINE.

Morgagni, and his Method in Medicine.

Dr. W. T. Gairdner, Professor of Practice in the University of Glasgow, in a lecture published in the *British Medical Journal*, October 24th, 1874, says of Morgagni's method:

It was simply that of careful observation and induction, founded upon almost innumerable dissections and histories of disease observed during life. This method (which he borrowed from Valsalva, along with an immense store of facts as the nucleus of his great work) becomes, in the hands of Morgagni, a veritable Ithuriel's spear or touchstone of truth. It is at once destructive and constructive; it shivers false theories to atoms; it replaces them by new and unlooked for combinations of fact, which of themselves build up a theory, in many cases of permanent and still undiminished value, because it is simply the logical statement of an enlarged and carefully noted experience. Thus, in investigating the *seats* of diseases, Morgagni is not content to record the *coincidence* of a lesion in an organ, with the symptoms apparently due to disordered function in that organ. For the first time almost in the history of medical inquiry, he insists on examining every organ, as well as the one suspected to be chiefly implicated; not only so, he marshals with the utmost care, from his own experience and that of his predecessors, all the instances in which the symptoms have existed apart from the lesion, or the lesion apart from the symptoms; he discusses each of these instances with severe exactness in the interest of truth, and only after an exhaustive investigation will he allow the inference either that the organ referred is, or is not, the seat of the disease. And, in like manner in dealing with causes:—a group of symptoms *may* be caused by certain organic changes; it may be even probable that it is so; but, according to Morgagni's method, we must first inquire into *all* the lesions of organs that occur in connection with such symptoms; in the second place, we must know if such lesions ever occur or concur without the symptoms; and, again, if such symptoms can be attributed in any cases to other causes in the absence of such lesions. Only after all these questions are discussed in the light of a large and varied experience, will this great master of pathological reasoning admit any absolute conclusion as to the organic cause of the disease.

It would be easy to give ample illustrations of this admirable method from the work of Morgagni himself; but, as the object of this address is not historical or literary, but practical so far as we ourselves and our work here are concerned, I prefer to look at what Morgagni's pathological and clinical method has done for us in the light not only of his own researches, but of those of his successors. For, from this point of view, all the more eminent moderns, and even the men of our own time, although they work with new means and appliances, amid a flood of new light from physiology and histological anatomy, and amid a science of organic chemistry which it may be said has been created, and extended, and applied, within the present century almost exclusively, are all of them successors and legitimate heirs of Morgagni's labors and method, in so far as they aim at uniting clinical with pathological research by strict processes of reasoning founded on multiplied observations. For it is this method and this spirit that make the essential distinction of the modern-minded physician or surgeon, and that separate him *toto cœlo* from the man whom Molière has depicted for us in caricature—most laughable, and, perhaps, unfair, but still not quite outrageous caricature, if we may trust contemporary letters and documents. The men of the century preceding Morgagni were divided into hostile camps; and it may be said that their discussions, so far as we know them, were generally not about facts, but about remote abstractions or scholastic wire-drawn analogies. Theories of diseased action so remote from evidence, and so comprehensive that it was impossible to get beyond the sweep of their drag-net, occupied all the schools, and gave the tone to the teaching from every professor's chair. "Under which king, Bezonian?" was the question addressed to every pupil and almost to every practitioner, who was almost compelled to be a humoralist, or a solidist, or a vitalist, without exactly knowing why he was so. And the practice was like the pathology; it was either modeled slavishly on custom and tradition, or it broke violently loose from these upon the basis of some outrageous dogma, which did not even assert for itself a birth out of carefully studied evidence, but only out of the dust of the arena, the fierce polemics of contending factions. It was scarcely a very violent caricature of the practice of his day, when Boileau compressed its results as regards the patient into one stinging line—

> "L'un meurt vuide de sang, et l'autre plein de séné,"

or even when Molière, out of his unbounded contempt for the whole apparent resources of the art, represents the whole chorus of the faculty as loudly approving the barbarous statement of them by Argan—

> "Clysterium donare,
> Postea seignare,
> Ensuita purgare,
> Repurgare, reseignare, et reclysterizare."

I do not mean to assert that Morgagni himself entirely escaped the influence of these debased traditions of art, or that we his successors have in all cases even now got clear of them; but it may be safely said that the foundations were laid by the Professor of Padua for our escape, and that all the good work done and yet to do, in this direction, has been, and must be, guided by the spirit and method of his work. And in this sense I claim not only the professed and exclusive morbid anatomists, but also, and still more, almost all the greatest physicians and surgeons of our own and the last century, as the legitimate successors of Morgagni and the inheritors of his method of working. Without him, we should probably have waited much longer for Laennec, and might very probably have been at this hour without the stethoscope, and all that it has brought us. Without him, we should almost certainly have been without those means and appliances in all our hospitals, which produced for us in this country Baillie, the Hunters, Richard Bright, Astley Cooper, and a host of others both at home and abroad, who have contributed their stores of experience to an investigation of disease at once clinical and pathological. The pathology of continued fever, and the differentiation, upon sure grounds of fact, of its varieties; all the work, in fact, which is represented by the labors of Bretonneau and Louis in France, of Stewart, Jenner, and Murchison in this country, is a direct emanation from the school and method of Morgagni, and has, like the work of the Italian physician, been quietly dispersing a whole dark cloud of visionary pathology and erroneous practice; the old names of febris pituitosa, biliosa, nervosa, putrida, maligna, etc., have disappeared, and order has entered in where there was formerly a chaos; as a consequence of this, our information as to the causes has grown to a reasonable degree of precision, and preventive medicine has obtained access to a realm where the blind fear of contagion was at one time the sole denominating idea. And, although we have as yet no grand curative discovery to boast of in this department, yet who shall say that it is nothing to have studied accurately the natural history of these diseases, and so to have been saved from the errors of Broussaisism on the one side, and Brunonianism on the other? That the whole realm of the continued fevers of this country has been rescued from confusion; that diagnosis has been rendered exact, and statistical conclusions possible, are results which we owe simply to a rigid application, by many and varied minds, of principles derived in great part from the work of Morgagni?

Syphilis in the Sixteenth Century.

Dr. T. C. Albutt remarks in the *British Medical Journal*, November 7, 1874:—

There is strong evidence to prove that syphilis, as a special and characteristic disease, first appeared near the end of the fifteenth century. Descriptions of the disease, which cannot be mistaken, begin to appear about 1490; and the writers of that period agree in speaking of the affection as "morbus insolitæ naturæ," as "incognitus non tantum vulgo, verum etiam doctis in medicinâ," etc. Such expressions could scarcely have remained unchallenged had the disease really been previously known. Moreover, "iste pestifer morbus" fell upon Western Europe with the virulence often seen in the first introduction of those poisons, which, like small-pox, scarlatina, etc., in time bring about their own mitigation. Whether the fact has already been noted, I know not; and, unluckily, my library is closed to me at present. But there exists in the old Pinakothek at Munich an admirable portrait of cutaneous syphilis, delineated by a master of the patient and keen-sighted school of early Germany. The picture, which is a prominent and excellent example of the earlier time of the school of Holbein, is hung near the corner to the left on entering the first room of the gallery. After some pictures from the school of Dürer, comes a triptych, numbered 16, 17 and 18. The centre is a St. Sebastian, on the right is St. Barbara, and on the left (No. 18) is St. Elizabeth, succoring the poor and the "lepers." To the left, in this third panel, is the head of a young man who presents, upon the right side of the forehead and face, a patch of tubercular syphilide, which is probably unequaled by any other extant representation. This work was long attributed to the younger Holbein, but it is probably from an earlier hand. On referring to the valuable critical catalogue, edited by Dr. Rudolf Marggraff (which is far superior to the ordinary catalogues), I find that the picture was brought from the Jesuits' church in Augsburg. There is no sure evidence, says the author, that this picture came from the hand of the younger Holbein; and, on the other side, both artistic and historical criticism obliges us ("zwingt uns") to attribute it to the elder Holbein. The author dismisses a recent "bold hypothesis" which attributes the work to Sigmund Holbein. Now, if we turn to the elder Holbein, we know that he was born in Augsburg about the year 1460, and that he died in 1524. No attempt is made by Professor Marggraff to fix the date of the present work; and to do so accurately is of course impossible. My own study of the picture, however, compels me to admit that it shows decided evidence of the later culture of the older Holbein, and that it can scarcely be a work of the fifteenth century. It was probably, however, painted not later than 1510–15, when the master was in his prime; so that, if we have not in this work a portrait of a syphilitic "leper" contemporaneous with the first outbreak of the disease, it must have been painted within twenty-five years from the date of the first literary descriptions of it. If this be not a very valuable, it is at any rate a very interesting piece of evidence.

The Origin of the Transfusion of Blood.

Dr. Chereau, the talented paleontologist of *L'Union Médicale*, well versed in chronological researches, has published in two numbers of that journal (Nos. 108 and 110, 1874), interesting articles in which he strives to prove that the first idea of transfusion originated in France. It was first suggested by a friar named Robert des Gabets, in 1651. The latter states that another friar, named Eloy Pichot, gave him the idea, upon which the former had two silver canulæ constructed, connected with a leather pocket the size of a walnut, the canulæ being provided with valves to prevent regurgitation. Seven years afterwards, Des Gabets gave a lecture on the subject at a conference held at a nobleman's house, where many foreign gentlemen were present, especially Englishmen. The inventor, however, never practised the operation which he had suggested, and we find that, in the Philosophical Transactions of London of Nov. 19th, 1666, the success which attended the transfusion of blood from one animal to another is mentioned, Lower being the operator. In 1667, Jean Denis, of Paris, assisted by Emmerez, performed transfusion, first from one animal to another of the same species, then different species were used, and the operation was modified so as to transfuse arterial blood into veins, and *vice versa*.

On the 15th of June, 1667, the same surgeons ventured upon man, first upon a young patient suffering from fever, and who had been bled twenty times to mitigate pain. The carotid blood of a lamb was used, and successful results were obtained. In the second place a porter was hired for the experiment. He received into his veins about twenty ounces of the arterial blood of a lamb; and was pleased with the operation.

In September, 1667, the Philosophical Transactions contained a paper in which the discovery of transfusion is claimed for Great Britain; and on November 23d, 1667, transfusion was first performed in England, upon a man called Arthur Coga, a lamb also furnishing the blood. Hence Dr. Chereau states that to France must be left the honor of having emitted the idea, to England the merit of having first put it into practice. The author of the article very carefully and minutely adds all the necessary references. He also proves, by original documents, that transfusion was never actually forbidden in France, as has been stated. The authorities only insisted upon certain precautions being observed.

II. STATISTICAL MEDICINE.

Vital Statistics of the Upper Classes.

A work on this subject by Mr. Charles Ansell is reviewed in the *Medical Press and Circular*, October 14, 1874:—

Of the 49,099 children of which full particulars are given, there were born alive 24,640 males and 23,400 females, and born dead 627 males and 432 females.

The Northampton tables were drawn up by Dr. Price, from births and deaths in Northampton from 1735 to 1780; the Carlisle table was published in 1815, and the Equitable Assurance table is founded on 21,398 persons assured in its books.

It has long been known that the death-rate of the more comfortable classes is far lower than that of the poorer. The expression "struggle for existence" well expresses the difficulty the lower classes have in keeping their children alive, and the writings of Malthus and Mill have made this point very clear.

Any large community, whether town or country, is mainly composed of the poorer classes, or the working classes, and hence the average rate of mortality of society at large approximates far more to that of the working classes than to that of the wealthy classes. Poor food and clothing, crowded dwellings, drink and neglect are, of course, common among the poor. "When the dominant feeling of parents with regard to their children is that they are a burden to them, the chances of the latter succumbing to the perils of infancy and childhood are seriously increased." In many instances the poorer classes have a direct pecuniary interest in the death of their children when they belong to insurance offices.

Comparing the mortality of the two sexes, as shown by the *upper class* experience, it will be seen that, with the exception of a short interval at about the age of two, the female mortality is less than that among males from birth up till ten; that from ten to seventeen the male death rate is considerably lower than the female; and after that age the mortality among females is materially lower than among males. In the *English Life* tables the death-rate of females between nine and thirty-eight is higher than males of the same ages. This is because among the upper and professional classes it is upon men that the wearing toil and anxieties of life chiefly press.

The mean age at marriage, as disclosed by the upper class tables, is very high, and is about thirty for males and twenty-five and a half for females.

The average number of children to a marriage is a most important feature in this table. Some couples had 18 children, and even 25 in one case. Clergymen seem, as a rule, to have 5.25 children, lawyers 5.18, and doctors 4.82.

Child-bearing in a few cases did not terminate until the age of fifty-three; but thirty-eight years is the mean age of mothers at the date of the birth of their last child.

The mortality deduced from the upper class data is to that of the Carlisle table in the proportion of 52 to 100 under one year of age; 26 to 100 between one and five; 61 to 100 between five and fifteen; 104 to 100 between fifteen and twenty-five; 91 to 100 between thirty-five and forty-five; 77 to 100 between forty-five and fifty-five; 71 to 100 between fifty-five and sixty-five; and 81 to 100 between sixty-five and seventy-five.

By the upper class tables the mortality is equal at the age of one and of sixty-nine; in the English Life tables it is equal at one and seventy-two. In the former table the rate of mortality at twenty-four equals that at fifty-six; in the latter that at sixty-five. In the former the mortality at three equals that at thirty-six; in the latter that at fifty-nine.

The Relation of the Birth-rate to the Death-rate.

In an editorial in the *British Medical Journal*, October 31, the writer, criticising Dr. LETHEBY's views, says:—

The pertinacity with which Dr. Letheby clings to his axiom that "the birth-rate is the controlling element of the death-rate," is worthy of a better cause, but is at the same time the strongest evidence of his reluctance to believe that he can be wrong. This blunder has been exposed so often that it is hardly worth discussing; but, as it is again made to occupy an important place in Dr. Letheby's address, a word or two on the subject may in conclusion not be out of place. The proportion of infants under one year of age in a population varies, according to the birth-rate, only between about 25 to 35 in a population of 1,000; it follows, therefore, that, so far as this age is concerned, any influence upon the death-rate of the whole thousand which the birth-rate exercises is confined to an extreme difference of about 10 infants. All children under five years of age do not average more than 100 per 1,000, whereas the proportion of persons aged 60 and upwards averages about 126. As the rate of mortality among children under 5 years is lower than that among persons aged 60 years and upwards, it follows that the average rate in a thousand depends fully as much—nay, more so—upon the proportion of elderly persons as upon that of infants. It often happens that the effect upon the death-rate produced by a low proportion of young children is more than counterbalanced by a high proportion of elderly persons; this is usually the case in agricultural populations. The *normal* death-rate in a population having a high birth-rate, calculated in accordance with the English Life Table, with reference to the distribution of the population at different ages, is almost invariably lower than that of a population with a low birth-rate. This is no theory; it can be tested by any one who will take the trouble to make the calculation. The reason is that, to produce a high birth-rate, you must have a large proportion of of young adults, the death-rate among whom is so much lower than at any other group of ages.

On Longevity.

SIR DUNCAN GIBB, M.D., LL.D., read a paper at the meeting of the British Association for the advancement of Science, upon "Longevity at Five Score Eleven Years." He said he had brought forward nine examples at previous meetings of the association, of persons who had overstepped the century by several years, and now his tenth instance was that of a female still living at Tring, in Hertfordshire, who attained her hundred and eleventh birthday in April last. Tables were quoted containing 84 instances of persons whose age extended from 107 to 175; 40 of these were under 130, and 44 above that age, and the author considered that three-fourths of the total number might be taken as correct. The proof of that was the instance he brought forward of Mrs. Elizabeth Leatherland, now alive and in her 111th year, her baptism being recorded in the register of the parish of Dover, in Kent. This was confirmed by the drowning of her son and his family, and other persons to the number of 37, at Hadlow, in Kent, in 1853, in the hop country, by a catastrophe mentioned and described in the papers of the time. Her son was then fifty-nine, and if now alive would have been eighty, his birth occurring when his mother was twenty-nine or thirty. Other corroborative circumstances were stated, clearly establishing the great age of the old dame, who was of gipsy descent. The author then described her condition, the result of a careful personal examination at Tring, in October, 1873.

She walked with the aid of a stick, was short in stature, bent with age, complexion brownish, countenance a series of thick folds, and she had several sound teeth. She chatted away continually in a clear, distinct voice, and was in possession of all her faculties, though somewhat impaired. She was a little deaf, and took snuff; her skin was as soft as velvet, and her hair quite gray. She was thin, and the muscles of her neck stood out in bold relief. All her internal organs were in perfect health, lungs, heart, &c., and her pulse was as regular and as soft as in a girl of eighteen. In fact, the changes of old age as met with in persons from seventy to eighty had not taken place in any of the tissues of the body, being thus similar to the nine other cases examined by the author. She was, of course, feeble; but taking all things together, that did not prevent her reaching to her present exceptionally great age. Her age, the author said, taught us two lessons—one was the absence of senile changes for the most part in centenarians, which was the chief reason of their attaining to such a great age; the other the occurrence now and then of instances wherein even six score years is reached, if not more. To ignore all past cases of extreme ultra-centenarian longevity because we cannot get at their proofs at the present day, he considered unphilosophical and unscientific; for there existed as conscientious and painstaking inquirers after truth then as exist now, whose statements and recorded facts must not be wholly ignored, as every honest investigator well knows.

Mortality of Europeans in India.

The British *Medical Journal*, of October 3, 1874, states that a return, included in the report of the Select Committee on East India Finance, gives statistics regarding the rates of mortality prevailing among English regiments in India between 1864 and 1870. After comparing the British Army in India, as a whole, with several regiments arriving between 1864 and 1869, Surgeon-Major Bryden, who prepared the return, arrived at the following conclusions: In every 1,000 soldiers under twenty years of age in the whole army, the death-rate was 7.61; under twenty-five years, 13.67; under thirty years, 17.41; and above that age, 29 94, giving a total of 68.63. Among the newly arrived regiments, the rate per 1,000 was 12.93 under twenty years, 24.87 under twenty-five years, 39.32 under thirty years, and 47.08 above that age—giving a total of 124.20, or nearly double the mortality in acclimatized regiments. From this it follows that European soldiers are exposed to twice as much danger during the first half of their stay in India as during the last moiety. On comparing the ratio of liability to death, nearly the same conclusions are reached in both cases. Among soldiers under twenty years of age, the percentage of mortality was only about one-quarter of that prevailing among those over thirty years, while between twenty and twenty-five years it was considerably less than between twenty-five and thirty years. This fact appears to prove the fallacy of the belief that young soldiers die off more quickly in India than veterans. Another column in the return, giving the mortality in newly arrived regiments during the second year of their Indian residence, serves to establish the same conclusion. In each 1,000 the death-rate was 3.95 among those under twenty years old, 15.84 under twenty-five years, 23.08 under thirty years, and 35.61 above that age, being a total mortality of 78.48. Since the average in the whole army was 68.63, and among regiments during their first five years of service 124.20, it would appear to follow that the most dangerous period for Europeans in India is between the second and sixth years of their residence in that country.

III. STATE MEDICINE.

River Boats as Carriers of Disease.

The following observations are from an article by Dr. ELY McCLELLAN in the *American Practitioner*, September, 1874:—

The class of common carriers who next to railways are actively employed in the transportation of infectious diseases, are vessels of all descriptions. It is not proposed to attempt any description of the transportation furnished diseases upon the high seas by the merchant marine or by war vessels; the fact is patent to all observers; but a consideration of the ability possessed by the vessels of all classes that ply upon the western waters of America is earnestly asked.

Can diseases be conveyed from point to point by river-steamers, and do vessels of this class offer an asylum to contagion, which may unexpectedly be developed in unprepared communities?

The large steamboats that navigate the western waters most certainly must be held to a certain responsibility in the spread of contagious diseases. A superficial inspection will be all-sufficient to convince even the most skeptical.

These vessels, compelled from the necessity of the waters navigated to be of light draught, are built with broad, deep decks. The lower deck, which is the largest, is for the accommodation of the machinery, freight, crew and deck-passengers; the second deck, the sides of the greater portion of which are lined with state-rooms, is for the use of cabin passengers; and an upper deck, or "the texas," upon which is a row of state-rooms for the use of the boat's officers: the whole is surmounted by the pilot-house.

All the available space upon the lower deck is occupied during a trip by freight, which consists of merchandise of all classes. The provision-chests and ice-boxes of the boat are generally found upon this deck, and to it are confined the class known as deck-passengers and the crew. A deck-passenger is one who can not pay full fare, and in America at once indicates the individual as belonging to those classes of the community among whom infectious diseases find their most numerous victims. These persons are furnished with nothing but transportation. They sit during the day and sleep during the night in such positions as they may best secure; and this is generally found to be upon those piles of freight which will be for the longest time unmolested. In this they are but little better off than the crew, who when not at work occupy any place they may select.

It is among the deck-passengers of a river-steamer that infectious diseases, cholera especially, are conveyed from point to point. As the disease almost always occurs in a community unprepared for its advent, so it is upon these vessels. The disease may have been announced in cities or towns upon the route of the vessel, but it is not until the disease is absolutely fastened upon the boat that the officers are inclined to adopt any precautions. Thus it was in 1873. Boat after boat passed up the Mississippi and Ohio rivers from infected points, upon which cases of cholera occurred; but the existence of the disease was denied, and the sickness was attributed to green fruit and vegetables, or to cholera morbus, that useful scapegoat!

A deck-passenger taken with choleraic diarrhœa uses the close and wet closet provided for his accommodation, and returns with soiled clothing to the pile of freight. The second stage of the disease occurs, and he vomits indiscriminately. The vomit and the involuntary dejections soak into the packages. The patient may advance to the stage of collapse, or the case may terminate fatally before attention is called to it. It is impossible to define to what extent articles of merchandise may become infected. Science has not yet defined the stage of the disease in which the excreta are most actively infectious, although it seems to be indicated that the excreta of cases in the stage of acute painless diarrhœa and the dejections of those convalescent, or who have passed into the stage of typhoid, are absolutely more virulent in their infecting properties than those which are drenched with watery constituents; and the recent series of experiments at St. Petersburg show that the urine of individuals infected with cholera is capable of reproducing the disease.

The class of persons who are known as cabin-passengers are those whose systems are most generally in the condition to resist the invasion of the disease. The accommodations afforded them are ample for comfort. Every effort is made to secure cleanliness. The food furnished is good and well cooked. But among this class of individuals those who may have contracted the disease before starting on the journey, or who are infected with the disease at any stage of its progress, will inevitably carry the infection with them; and the articles of bed-furniture which have become soiled will, when washed, the destination of the vessel being reached. affect the health not only of those who perform the work, but also that of the communities in which the workers reside. It is useless to contend that Cincinnati and other cities on the Ohio River were not in this way infected in 1873.

The Geographical Distribution of Disease.

In an editorial on this subject in the *Lancet*, November 7, 1874, the writer says:—

The determination of the geographical distribution of disease is beset with peculiar difficulties. It is often by no means easy to ascertain, even approximately, the relative frequency and infrequency of many diseases, chronic as well as acute, in different localities. Sometimes it is not easy to learn whether a malady does or does not occur in a given country. One cause of this difficulty is the little value to be attached, with respect to some diseases, to the opinions of those who alone can supply the requisite information. The rapid strides which late years have witnessed in the diagnostic association of symptoms leave the practitioners of the last generation and of some other countries far behind, except in the rare instances in which unusual energy and leisure permit continuous study. As observers become better informed, diseases are found to abound where formerely it was believed that they were unknown. Rickets affords a familiar instance. It is doubtful whether any district or any country is exempt from this disorder of childhood. At any rate, as far as we can ascertain, the conditions in which it takes rise are to be found everywhere, and it is doubtful whether there is any authenticated instance of a locality in which an observer thoroughly conversant with the symptoms of rickets has failed to find the disease. Yet nothing is commoner than to meet with practitioners who, on first being shown marked instances of the disease, assert the entire immunity of their districts; in which, however, they, with better information, soon find that the affection is abundant enough. Paralysis agitans is another example of a disease, the geographical distribution of which rests in considerable obscurity, due in part to the same cause. In this country the malady is common enough, and seems, from its prolonged duration and obvious symptoms, to be still commoner than it is. It has for many years had a place in our scientific treatises, and for still longer a prominent position in the popular nosology. Yet in France it is still only beginning to be recognized. A recent number of a French provincial contemporary (*Lyon Médical,* October 25th) records in full, as of sufficient rarity to merit detailed description, a very ordinary case of this disease, the nature of which would appear to have been unrecognized by the physician in charge. Probably no affection of common occurrence in England is less known in the French provinces. For thirty years after the description by Parkinson in 1817, and its general recognition in this country, it remained unknown in France. According to Charcot, no mention of it occurred in French literature until it was alluded to by M. Sée in his work on Chorea, published in 1850. It is difficult to conceive that this ignorance of the disease is not an indication of actual infrequency.

On Female Labor.

The London *Medical Review,* October 28, translates an abstract of an address of Dr. HIRT, of Breslau, on Female Labor in Manufactories. While in general numerous cases of disease existed in the various kinds of industrial occupation, this was the case in a much higher degree as regards women. While the healthy woman required for herself a greater amount of protection than the man, this protection was in a special manner required for pregnant females employed in factories. For the protection of the latter, the speaker demanded general legal regulations. Long continued exhausting labor, machine-sewing, etc., were known to produce abortion; and this was also caused by working in certain poisonous materials, viz., lead, phosphorus, mercury, anilin, arsenic, and copper. Of 140 pregnant women working in lead, 82 had abortion, or 58 per cent. Statistics showed similar results with regard to mercury, arsenic, and anilin. It was further established that the action of these poisonous matters was communicated from the organism of the mother to that of the child. In 1,000 cases of female lead-workers, 785 had still-births; and in addition, 40 per cent. of their children died within the first, and 30 per cent. within the second year. The annual mortality among children of females employed in coating mirrors was 65 per cent. In normal conditions, the mortality of children in the first year was only 20 per cent., and even in large towns it was not higher than 20 or 25 per cent. Again, the female laborers referred to were much too imprudent after their confinement, and were in too great haste to return to work. Hitherto, unfortunately, legislation had afforded no protection, either in England, France, Austria, Germany, or Belgium. Switzerland alone had made a beginning, and must be an enlightening example to Germany. The humanity of the house of Dollfuss, in Mühlhausen, was also worthy of mention, where full leave of absence was allowed to all the pregnant females for three weeks before and three weeks after confinement. The reporter summed up as follows:—1. Pregnant women should be interdicted during the second half of pregnancy from employment in all branches of industry where poisonous materials are used; as, for example, the manufacture of colored papers and artificial flowers, the coating of mirrors, the manufacture of caoutchouc articles, etc.; and they should also be excluded from factories where injurious gases abound. 2. No puerperal woman should be employed in any manufactory before the ninth day after her confinement. 3. No puerperal woman should be employed in a factory where poisonous materials are used before the forty-second day after her delivery.

Lymph and Crust Vaccination.

The comparative merits of these methods are discussed by Dr. JOHN MORRIS, of Baltimore, in the *Sanitarian,* October, 1874:—

There are three forms of vaccination at present employed:—First, animal vaccination; that is, with virus taken directly from the heifer. Second, human vaccination, as practised in Europe, in the form of fresh lymph taken from the vaccine vesicle at an early stage of its development. Third, human vaccination, as practised in the United States; that is, with virus taken from the dry pustule or crust.

As it is our purpose in this paper to discuss only the question of vaccination by liquid lymph and dry crust, we shall say nothing in regard to animal vaccination. The thorough examination of its merits and demerits, brought about by the late epidemic of small-pox in Europe, has given every one an opportunity of judging of its efficacy or usefulness (we may, however, remark, *en passant*, that in this country it has gained no new adherents). The two forms of human vaccination, then, are only to be compared and discussed. Our own experience favors the employment of the dry crust, as practised in the United States, for reasons to be adduced.

It is not generally known that there is a very marked difference in the character of the disease produced by the two forms of vaccination, so marked as at once to enforce the most earnest inquiry. The stages of the vaccination are entirely different in the two modes, and the growth of the vesicle and the period of maturation are entirely dissimilar. In vaccination with liquid lymph, the vesicle begins to form on the third or fourth day, and the areola on the fifth or sixth day; in vaccination with the crust, the vesicle does not commence to form before the seventh or eighth day, and the only evidence to be discovered before that time of the virus having taken is a few small inflammatory points, which make their appearance about the fifth, sixth or seventh day. (The later these points begin to show, the better and more effective is the vaccination.) A careful observation of two vesicles produced by the two methods of inoculation will demonstrate that the pustule produced from the dry crust possesses different elements of action, and yields different physiological results. In vaccination with the dry crust, the vesicle does not begin to form, as already stated, before the seventh or eighth day, when constitutional symptoms first become manifest. These symptoms are more general and better marked, though the local irritation is not greater than in vaccination by lymph. The true characteristic areolar test is always to be discovered when the crust is used, but in the case of lymph, particularly when it is taken from the arm, at a very early stage, it is not always to be found, a starved, over-inflamed vesicle taking its place. The maturation, too, of the vesicle is different. In vaccination by lymph, the pustule desiccates and falls off about the fourteenth or fifteenth day, or earlier; whereas with the crust this does not usually take place before the twentieth or twenty-first day, and then frequently the crust has to be removed by the operation. The cicatrix, too, is different in the two forms, and this is important, for its distinctive marks are always held as a guide to and test of a true vaccination. When the crust is used, we have a deep, cup-like, foveated, indented cicatrix; when lymph is employed, the indentation is superficial, and the other test marks frequently wanting.

Having thus stated the difference observable in the two forms of vaccination, we now proceed to give the reasons for our preference for the dry crust.

1. In vaccinations with the crust, particularly if done by scarification, failures are infrequent, indeed exceptional; whereas with lymph they are exceedingly common, as any one who has read the English medical journals for the past five years cannot have failed to discover.

2. Lymph virus deteriorates more readily and is not so easily kept as the crust. Dry lymph, when used from tubes or points, almost invariably fails. There can be

no doubt about the deterioration of lymph. Dr. Short, the Superintendent of the Madras Presidency, in an article in the *Madras Journal of Medical Science,* says that this fact is evidenced by the more rapid course of the vesicles and the occurrence of extensive local irritation.

3. Lymph taken from the arm at an early stage of the vaccine disease, before fever has set in or constitutional symptoms have fully manifested themselves, does not contain those morbific elements necessary to protect the system from variola; whereas in the dry crust these elements are found in an active and concentrated form. If this view be correct, it affords an explanation of the failure of the European system of vaccination. In England they take lymph from the arm before the areola commences to form, indeed frequently as early as the fourth or fifth day. Dr. De Hovell, in a communication to the *Lancet,* says the earlier the period the better; and in the instructions published by the Lords of Her Majesty's Privy Council, for the guidance of the profession, we find the following clauses: "7. Take lymph on the day week after vaccination, at the stage when the vesicles are fully formed and plump, but when there is no perceptible commencement of areola." Clause "8. Consider that your lymph ought to be changed, if your cases, at the usual time of inspection, on the day week after vaccination, have not, as a rule, their vesicles entirely free from areola" Here then the old-fashioned, much-prized areola test, to which Jenner himself attached so much importance, is not only ignored but condemned, and a vesicle selected concerning the character of which there can be no certainty. In Paris, the employment of lymph furnished by M. Lanoix, during the late epidemic, proved almost an absolute failure, and even pure animal lymph was unsuccessful in twelve of thirteen cases vaccinated by Doctor Constantine Paul, at Hospital Beaujou.

4. Sequelæ of an unpleasant character frequently follow lymph vaccination, whereas with the crust they are exceptional. In three thousand cases of vaccination by the crust in our own practice, only one single case of local irritation of an unpleasant character occurred. This point is not sufficiently regarded. Evidences of an unhealthy condition of the vaccinefer's system can be readily detected by a careful examination of the growth and maturation of the pustule; but where lymph is taken from the arm at an early day, no such evidences can possibly be diagnosed.

5. Vaccination by lymph does not protect the patient, but necessitates a re vaccination; whereas a true vaccination by the crust affords thorough protection. In a late number of the *Lancet,* the editor says that re-vaccination is urgently necessary; and Mr. Marson reports that in six months, out of 751 cases admitted to the small-pox hospital, 618 or 82 per cent. were in vaccinated persons. We are convinced that no such result could follow in this country. A genuine vaccination here, in our judgment, affords as much protection as variola itself.

The reasons that have been urged against the employment of the crust are very trivial. The theory that blood may be taken up and constitutional diseases propagated by its use, as suggested by Dr. Anstie, is entirely groundless, as is also his view in regard to the danger of pus.

Doctor Blane's argument in favor of animal vaccination, and the reasons he urges for the use of lymph from the heifer, in preference to human lymph, do not apply to the crust. None of the evils he attributes to human vaccination are to be found in the American mode; but as animal vaccination itself has been in some degree a failure, and has, at times, some unpleasant consequences attendant upon its use, we cannot accept it in lieu of the crust, which has proved so generally serviceable in this country. It may possess advantages over human lymph, but the crust is superior to both.

The history of the late epidemic of small-pox in Baltimore, confirms the truth of these views. Doctor Conrad, the resident physician of the Small-pox Hospital, reports 1,246 cases treated during the years 1871, 1872 and 1873, and, speaking of the remarkable susceptibility of the Germans, says:—"No nation on the globe has such rigid laws of compulsory vaccination as Germany; no people are so thoroughly vaccinated; about every one presenting from one to eight, and even sixteen vaccine marks (done in infancy), and yet it is astonishing the number suffering with even dangerous forms of the disease, in some cases unmodified altogether. The fact of so many Germans having marks, apparently of good quality, and yet such grave degrees of variola, led me to make more careful observations of the marks which I found on their arms, as compared with other races and nations. It soon struck my attention that the German cicatrix or cicatrices—for they rarely had less than three—had a less number of foveations, or thimble-like depressions in each mark (while the marks themselves presented a greater display of protection) than was the case with those of the American or African; then again I found but few adult Germans who had been vaccinated since the age of puberty. These two facts alone would account for the excess of disease in the Germans, but for one other fact in comparison. The negro, who had but rarely more than one mark, and that generally imperfect (also done in infancy), *had a less degree of variola than the Germans*, with all their vaccine marks. In truth, the observation forced itself upon me that one imperfect mark upon the adult negro (done in childhood) was more protection to him than the very many found on the arm of the German, done at the same age." Dr. Conrad attributes this to a peculiar individual susceptibility in the different races, but in this we are convinced he is in error, and that the difference consists solely in the character of the original vaccination, forasmuch as what he states in regard to the Germans, applies equally to other foreigners vaccinated in the same manner.

The Relations of Ozone to Health and Disease.

In the *American Journal of Medical Science*, October, 1874, Dr. J. F. BALDWIN, of Columbus, Ohio, casts doubt upon the generally asserted antiseptic powers of ozone. He concludes his article:—

The remedial effects of ozone have attracted little attention and gained little credence. Comparatively few have advocated the theory of its acting as the exciting or predisposing cause of disease. But in the minds of many practitioners there exits an indefinite, half formed idea that ozone destroys the specific poison of zymotic diseases; or, in other words, that the absence of ozone is the cause of the production or propagation of these diseases. Therefore I have devoted considerable space to the discussion of this part of the subject. The prevalence of this idea, and the extreme to which some have carried it, cannot be regarded, however, as proof of its truth. There exists in every mind a natural desire for some solution of the mysteries connected with epidemics: plausible hypotheses have always been readily received by the public, which ever, as Bacon says, "loves better to believe than to examine;" and it is notorious that when once the mind has become impressed by a new and strange object, it takes pleasure in ascribing to it properties which it does not possess, and which are often absurd. To get a more exact and full expression of opinion on this subject than I had been able to obtain by examining the various journals, I instituted a correspondence with a large number of scientific and professional gentlemen living in various parts of the country. As a result of this correspondence, I find that many of these gentlemen, especially those who have not made any observations, still hold the question *sub judice ;* but that those who have tested the matter and have formed an opinion, with one exception only, hold that there is "no connection" between ozone and disease.

When I commenced the study of this subject, I was biased in favor of the view that ozone could produce disease directly by its presence, and indirectly by its absence. But after a careful and candid investigation, I think this view entirely erroneous Reasoning *a priori*, from the premises furnished by what I found known of ozone and of epidemics, did not result in a conclusion favorable to any such hypothesis; while a resort to recorded observations proved no more satisfactory. It is true that occasionally, in some circumscribed locality, the fluctuations of an epidemic have seemed to sustain a certain relationship to the fluctuations in the amount of ozone; but such an exception proves nothing. In truth, it would be strange if such a coincidence did not sometimes occur; for, by a well-known law, a parallelism must exist, now and then, between two independent and irregular curves.

In the relation of ozone to disease, that which accords perfectly with the known properties of ozone, which harmonizes with the results of all observations, and which at once challenges rational belief, seems to be simply this: *Ozone influences the general health, only in so far as it purifies the air by destroying*—not the living germs of disease, but—*the products of decomposition.* Beyond this, all views concerning the action of ozone, as a cause, a remedy, or a preventive of disease, rest upon vague and unfounded hypotheses.

A Health Resort in New Jersey.

The advantages of south-eastern New Jersey as a health resort are adverted to by Dr. J. R. Stevenson, in the Philadelphia *Medical Times*, August 29, 1874. He says:

It is to the section of New Jersey familiarly called by the natives the "Pines," that I wish to invite the attention of the profession. Geographically, it is the Atlantic slope of that State, which, beginning in the upper part of Cape May county in the south, extends in length ninety miles north to Monmouth county, in the north-eastern end of the State; and in width, from the sea-coast to the valley of the Delaware, a varying breadth, whose greatest distance is along the Camden and Atlantic Railroad, about forty miles. The valley of the lower Delaware, about eighteen to twenty miles wide, is separated from it, by a ridge or elevation, whose greatest height is about three hundred feet above the level of the sea; from this ridge water-courses run in two directions, the one leading to the Delaware river, the other to the ocean. This flat plain has a soil of coarse white sand, from six to twelve inches in depth, resting upon a bed of gravel or clay. It is abundantly supplied with water from numerous springs and rivulets, which in many places overflow the lower portions of the land, forming great swamps, which were originally covered with a growth of cypress (Cupressus thyoides and disticha), trees famous for their size and the durability of their wood, but are now mostly supplanted by the stunted oak and pine, through which still roam the deer and an occasional bear. The water of these springs and streams is peculiar, having a sweet, pleasant taste, and a brown or red color, giving to the hand, when thrust into it, the appearance of being bloody. It is called, in that country, "cedar-swamp water," and has the reputation there of being very healthy both to drink and to bathe in.

The climate is milder and more uniform than it is in the same parallel of latitude west of it, as the extreme heat of summer and cold of winter are materially modified by the proximity of the ocean and by the slope of the land to the south-east. This is shown not only by direct observation, but also by the character of the flora, which is essentially different from that of adjacent Pennsylvania, and is similar to that of Virginia and the Carolinas. A peculiarity about this locality is that malarial diseases are unknown, even along the streams and in the swamps, while in the Delaware valley malaria is prevalent, in a mild form, along all the water-courses that empty into that river.

From the earliest settlement of West Jersey, tradition has fixed in the minds of the natives a strong belief in the healthfulness of the "Pines," especially its beneficial effects upon diseases of the pulmonary organs; but as, until within a few years, the land, believed to be barren and worthless, was almost uninhabited except by wood-choppers and charcoal-burners, little was definitely known about it, except that occasionally an individual laboring under pulmonary disease, who was forced by business to spend some time there, found that his health had very rapidly improved.

The Liernur System of Sewerage.

The Liernur system is thus described in the *British Architect*:—

"In a building, which may be located in any part of the town, a steam-engine is placed, which works an air-pump; beneath the floor of the building large air-tight cisterns are concealed, and the air in them is exhausted by means of the pump. From the cisterns air-tight pipes of cast iron proceed along the chief streets, having cisterns placed below them at intervals. From these secondary cisterns other pipes radiate along the smaller streets, and these communicate by branch pipes with the closets of the houses. Where the pipes enter and leave the street cisterns the house cocks are placed, which can be opened by keys in the same manner as water mains are worked. Closets of the simplest description are alone required. The excrement in the first place falls into a sort of hydraulic trap, which discharges into the pipe connecting the closet and the nearest street cistern. The entrance to the pipe is also guarded by a self-acting valve, which shuts off all communication with the system of street pipes, except when the air is exhausted in them. This is done at certain times in the twenty-four hours, as the case may be. The valve revolves, the matter is sucked out of the pan in which it has been received, and drawn into the central building. All the closets near and far put in communication with the central exhausted reservoir are emptied simultaneously. The pressure applied is about three-quarter vacuum. After the matters have been thus collected from a district and stored in the central reservoir, they are further disposed of in three ways. They are first transferred, still by means of vacuum power, to hermetically closed tanks above the floor of the building. From thence they may be decanted in their liquid state into barrels. This is managed in a very ingenious manner, so as to avoid all smell or escape of sewer-air. A double india-rubber hose is furnished with a two-way cock; through one hose the sewage is let into the barrel, through the other the displaced fetid gases are conducted back to the reservoir. From thence the air-pump removes them as fast as they accumulate, and forces them into the furnace of the steam-boiler, where they are burnt. In this manner every nuisance offensive to the sense of smell or capable of being dangerous to the public health is absolutely prevented. By another process the sewage may be conducted to air tight drying retorts, where it is reduced to 'poudrette,' or it may be at once mixed with earth from the surrounding country, and so prepared for carting away."

It will be seen that in this system there is no current from the sewer to the house as at present—quite the reverse; nor are the excreta mixed with rain-water or house-slops.

Mineral Acids in Vinegar.

M. STROHL, according to the *Chemist and Druggist*, September 15, 1874, recommends a method of detecting the presence, and in some degree estimating the quantity, of mineral acids in vinegar, founded on the insolubility of oxalate of calcium in dilute acetic acid and in vinegar, and the solubility of the same salt in diluted mineral acids.

As reagents are generally more sensitive when freshly prepared, the oxalate of calcium is formed at the moment when it is required to act by adding to the liquid to be tried, determined quantities of oxalate of ammonium and chloride of calcium in solution. The solutions of these salts are of such strength that equal volumes exactly decompose each other, and produce only a fairly apparent turbidity in vinegar free from mineral acid. A series of trials lead to the choice of aqueous solutions containing one-fifth of an equivalent of the salt in grammes in one litre, so that half a cubic centimetre of each when added to 50 cubic centimetres of vinegar free from mineral acid cause marked turbidity after agitation.

Solutions of the mineral acids used to sophisticate vinegar are then prepared—two grammes of the anhydride in 100 cubic centimetres.

The *modus operandi* is as follows:—Half a cubic centimetre of each of the saline solutions is added to 50 cubic centimetres of vinegar, which is thus rendered turbid. One of the mineral acid solutions is added from a burette until limpidity is restored —say six cubic centimetres are used. The experiment is repeated, but this time the acid is added first and in smaller quantity than before—say four cubic centimetres to forty-six cubic centimetres of vinegar. If, on stirring, the turbidity is at once removed, too much acid has been used, and the experiment must be repeated with a still smaller quantity. In this way the limit of sensibility for each of the acids is arrived at. Five centigrammes of anhydrous hydrochloric acid, ten of nitric anhydride, or seven of sulphuric, contained in fifty cubic centimetres of vinegar, are sufficient to prevent turbidity when oxalate of calcium is added as above, and their presence in the vinegar is thus ascertained. If after agitation the turbidity is not removed, the vinegar contains less than the above quantities; if it is completely removed, at least these quantities are present, and there may be more. The solutions once made, the process is of easy application and may be made most useful.

Varieties of Food.

The annexed extract is from an editorial in the *Medical Times and Gazette*, August 29, 1874:

Medical men, neglecting the evidence of their daily experience, put implicit trust in the newly-discovered and fascinating theories of Liebig. According to these, nitrogenous food was the source of force and nutrition; non-nitrogenous food of heat alone. So, beguiled by this theory, our medical brethren began to denounce starch as innutritious, and manufacturers began to wash the starch out of wheat, and to prepare aliments of pure gluten, as if—though these are valuable in diabetes—they were the best for ordinary nutrition. But then came a reaction; for it was shown by experiment that non-nitrogenous food, by its oxidation, is a source not only of heat, but of muscular movement; and that although nitrogenous food was necessary for the conservation and repair, and although it might serve for the production of heat and force, yet that heat and force in vegetable feeders were due to non-nitrogenous elements. Then came the fact that the poorer and cheaper kinds of wheat-flour, as of other vegetables, are the richer in nitrogen and phosphates, whereas the finer and more expensive wheats, which everybody eats who can afford to buy them, are the richest in starch and poorest in nitrogen and phosphates. And next, the experience of every sick-room testified to the value of the old-fashioned cup of arrowroot. Mr. Cooper adds a special instance, showing that during some weeks of sea-sickness he lived on nothing else but arrowroot and water.

Now, all these arguments are conclusive as to the fact that starch has some value as nutriment—value of the same kind as sugar and fat. But one other great reason for the disgrace into which it has fallen is the notion, which seems to be upheld by some of those who have corn flour to sell, that it alone and by itself is an adequate food for children and sick people. Now, we know that neither muscle nor bone can be made out of starch alone; hence that milk or some other nitrogenous food must be added if the patient is to "make old bones." The truer statement would be that milk *plus* corn-flour or arrowroot is often more suitable, more digestible and nutritive than milk without; but then the corn-flour must be looked upon, not as a substitute, but as an improvement to the milk, by adding to its force-creating and muscle-working elements, though it adds not to its muscle and bone-growing elements. After all, there is truth in the statement of Buckle, much laughed at as it was, that the wealth and power of a nation depend mainly on the abundance of starch.

IV. EPIDEMIOLOGY.

The Origin and Extension of Cholera.

The International Health Conference, which met at Vienna in July, 1874, discussed these questions with the following results:—

I. *Endemicity and Epidemicity of this Disease in India.*—Asiatic cholera, susceptible of spreading (epidemically), is spontaneously developed in India, and when it breaks out in other countries, it has always been introduced from without. It is not endemic in any other country but India.

II. *Questions of Transmissibility.*—1. *Transmissibility by Man.*—Cholera is transmissible by man coming from an infected medium; but man is not considered as the specific cause, apart from the influence of locality; he is regarded as the propagator of cholera when he comes from a place where the germ of the disease already exists.

2. *Transmissibility by Clothing, Linen, Bedding, etc.*—Cholera can be transmitted by personal effects coming from an infected place, especially such as have served for the sick from cholera; and certain facts show that the disease can be carried to a distance by these effects if shut up so as to prevent free contact with the air.

3. *Transmissibility by Foods and Drinks.*—(a) *Foods*—The Conference not having conclusive proofs of the transmission of cholera by foods, decided by eleven

States against seven that it was not justified in coming to a decision on this question.

(b) *Drinks.*—Cholera can be propagated by drinks, particularly by water.

4. *Transmissibility by Animals.*—No proof exists of the transmissibility of cholera by animals, but it is reasonable to admit the possibility of such transmission.

5. *Transmissibility by Merchandise.*—Although proof is wanting of the transmission of cholera by merchandise, the possibility of such transmission in certain conditions should be admitted.

6. *Transmissibility by Cholera-corpses.*—Although it is not proved that cholera-corpes can transmit cholera, it is prudent to consider them dangerous.

7. *Transmissibility by the Atmosphere alone.*—No fact is yet known which proves that cholera can be propagated to a distance by the atmosphere alone, whatever its condition. Moreover it is a law, without exception, that an epidemic of cholera is not propagated from one place to another in a shorter space of time than it takes man to travel.

The surrounding air is the principal vehicle of the generative agent of cholera; but the transmission of the malady by the atmosphere, in the immense majority of cases, is restricted to the close vicinity of the focus of emission. As to facts asserted, of transportation to a distance of one or many miles, they are not conclusive.

8. *Action of the Air upon the Transmissibility.*—It results from a study of the facts that in free air the generative principle of cholera rapidly loses its morbific activity; but that in certain conditions of confinement this activity may be preserved during an undetermined time. Great deserts form a very efficacious barrier against the propagation of cholera. This disease has never been imported into Egypt or Syria, across the desert, by caravans from Mecca.

III. *Duration of Incubation.*—In almost every case the period of incubation—that is to say, the time which elapses from the moment when an individual has contracted the choleraic intoxication to the commencement of the premonitory diarrhœa or of confirmed cholera—does not exceed a few days. All the facts cited of a more prolonged period of incubation refer to cases which either are not conclusive, or in which the premonitory diarrhœa has been included in the period of incubation, or in which contamination (the contraction of the choleraic intoxication) has occurred after departure from the infected place.

Observation shows that the duration of the choleraic diarrhœa called premonitory—which must not be confounded with other kinds of diarrhœa that may exist where cholera prevails—does not exceed a few days.

The facts instanced as exceptional do not prove that cases of diarrhœa of lengthened duration belong to cholera and are susceptible of transmitting the malady, when the person affected is removed from all cause of (choleraic) contamination.

IV. *Questions as to Disinfection.*—Are any means or processes of disinfection known by which the generative or contagious principle of cholera can be *certainly* destroyed or deprived of its intensity?

Are any means or processes of disinfection known by which the generative or contagious principle of cholera can *with some chance of success* be destroyed or deprived of its intensity?

Science does not yet know any certain and specific measures of disinfection; but the great value of hygienic measures, such as ventilation, thorough cleansing, &c., is to be recognized, combined with the use of the substances regarded as disinfectants.

IV. EPIDEMIOLOGY.

Variola Propagated by Vaccination.

In the *Gazette Médicale de Strasbourg* of July last, quoted in the London *Medical Record*, there is an account of an epidemic which was propagated by vaccination. "On May 3, 1872," (says the article from which we quote), "twenty-four infants at the breast were vaccinated from a child three months old. All became sick, more or less, towards the end of the first eight days, and some were unable to present themselves for examination on May 10. On this day twenty-three other children were vaccinated from one of the first batch, in whom the vaccinia was normal (ayant une vaccine normale et exempte d'éruption quelconque). These last experienced the same febrile symptoms, and all the children, without exception, the two vaccinifers included, were seized from the eighth to the eleventh day of the vaccination with an eruption presenting the following characters.

"Reddish pale papules of the size of a pin's head were spread over the whole of the body, accompanied by fever; two days afterwards vesicles were formed filled with a whitish liquid, and their extension upon the mucous membrane of the nose and mouth rendered the voice indistinct (voilée) and deglutition difficult.

"Let us note, too, that everywhere the vaccinia had followed apparently its normal course, and that the pustules, without being very good, had their characteristic aspect. Twenty-six infants, more advanced in years, were re-vaccinated of these two vaccinifers, and many among them were seized some days afterwards by a fleeting rash of short duration, resembling urticaria.

"The exanthem of the infants was characterized by its results. It became the point of departure of a small-pox epidemic, which commenced among the mothers and the members of the families of the said children, and which was propagated with such rapidity, that from May 15 to June 19, there were seventy-five cases, not including the vaccinated children. On July 30 the epidemic was considered to have terminated, after having attacked 141 persons, which, with the forty-seven vaccinated, forms a total of 188 persons in a population of 3,000.

"The disease was severe; three of the cases being hæmorrhagic, of which two died; of the whole number, nine died, eight adults and an unvaccinated child.

"It is clear," said one medical man, "that these vaccinated children were under the simultaneous influence of the poisons of vaccinia and variola. This is a well-known fact; but how is the explosion of the variola to be explained in these forty-eight children. One cannot admit that they were incubating variola at the time of their vaccination; that might happen in isolated cases, but not in two large groups. Moreover, the simultaneousness of the appearance of the exanthem, each time from the ninth to the eleventh day of the vaccination, absolutely negatives this supposition and connects the variola with the vaccination.

"Direct official information and special inquiries showed that the child that served to vaccinate the first vaccinifer was free of all small-pox eruption; but at this period there was small-pox at Oedt, and a relative of the first vaccinifer was sick of it. On the eighth day of its vaccination, when it had served the first group of May 3, this infant had small-pox, but still in the incubation period; its blood was contaminated, and the variolous virus, it was urged, might have been produced in the vaccine pustule, as in syphilitic vaccination."

The writer of this article rejects the notion that the variola might have owed its existence to contagion, inasmuch as if that notion were true the mothers as well as the children would have suffered; as also the notion that the variolous virus was inoculated along with the vaccine virus. He maintains that the facts are most simply explained by admitting that the first vaccinifer had undergone variolous inoculation. Quoting from an old treatise on the history and practice of inoculation (Dézoteux et Valentin; Paris, an. viii), he thus describes that process: "First period: Eruption local. In the five or six first days which follow the insertion, the variolous virus exercises only a local action, and determines an eruption of pustules in the inoculated places, named local or primitive eruption. This local and primary eruption is a true small-pox, special to the inoculated part.

"The second period, fever of invasion, commences ordinarily at the end of the seventh day, or in the eighth, dating from the moment of insertion. At the end of the third, or at the commencement of the fourth of this fever, that is to say the tenth cr the eleventh of the inoculation, commences the third period, or that of the general eruption, more or less intense, often reduced to some pustules and of failing altogether.

"Let one compare this description with the vaccinations at Oedt, and one will see a complete identity; towards the eighth day all the vaccinated infants were sick more or less, and from the eighth to the eleventh day they had variolous eruption. It was then variola which was inoculated, but was vaccinia at the same time. There is no evidence for or against, for no one to-day can demonstrate directly the nature of the pustules of insertion of the first vaccinifer; one can only do so by a rigorous analysis of the consequences of their propagation, and that indicates nothing but small-pox."

The Relation of Minute Organisms to Disease.

The following careful abstract is quoted from the *Irish Hospital Gazette*, October 1, 1874. It is from the pen of **Gerald F. Yeo**, M. D., Dublin, Assistant Physician to the Whitworth and Hardwicke Hospitals, Lecturer on Physiology in the Carmichael School of Medicine:—

The increased attention which has of late years been paid to the study of Microscopic Anatomy, has caused many changes in the views formerly held as to the Pathology of almost all classes of disease. Of these changes none have been more striking than the attempt to attribute disease of the zymotic group to the action of innumerable minute living organisms, which are constantly found in structures undergoing certain chemical and pathological changes, and to which the power of exciting and propagating these processes has been allotted. Thus, a mechanical theory is now proposed to account for those diseases concerning which but little has at any time been known, and the essence of which was by older writers considered to lie in "vicious spirits," "subtle juices," or "distempered humors" in the blood. A discovery which would unveil the long hidden enemy, would be indeed a notable step in pathology, and prove equally interesting to the clinical worker, the physiologist, and the sanitarian.

These morphological elements of disease are so extremely minute, that there is considerable difficulty in determining whether they should be placed in the animal or vegetable kingdom. Hallier, who is followed by the greater number of modern German writers, places them among the lowest forms of plants, while, on the other hand, the greater number of French naturalists think they belong rather to the animal kingdom. With the latter Burdon-Sanderson agrees, on account of their chemical action on air and their movements, and places them next the monads. They have been described as occurring in a variety of sizes and forms,* which have received names according to the tastes of the numerous authors who have described them in various parts of the world. The most commonly used terms are "Micrococcus," and "Bacterium," which correspond to the two great varieties which appear in every classification, and are recognized by almost every observer, while microzyma, monad, vibrio, are by some used more indefinitely.

The *first* of these forms, *micrococcus*, is made up of spherical or spore-like bodies which vary in size from quarter of that of a red blood cell to almost invisible minuteness; they are not capable of automatic movements, and are supposed by some to be the earlier forms of development of bacteria. The *second* variety consists of minute rod- or staff-shaped elements, which are usually undergoing very rapid automatic movements, and to which the term *bacteria* is usually applied when any distinction is intended; but, these names seem to be used by many authors with same meaning. Both forms sometimes occur in masses, with a well defined contour, in which the elements are held together by a soft, tranparent, interstitial substance. These masses have been called by many names, the simplest of which is "*colonies.*" They also occur in *chains*, viz., a number adhering in a row, the divisions separating each individual being sometimes so indistinct that they have been called *filaments.* Little is known of their chemical composition, but it has been determined that they possess important powers over the media in which they are placed. They absorb oxygen and discharge carbonic acid; they take nitrogen from any source that contains it; but, are independent of the chemical composition of the liquid in which they are placed so long as they are supplied with oxygen.

These little organisms were first brought into notoriety by their connection with putrefaction, the ordinary conception of which process has undergone of late years considerable changes which may be looked upon as the precursors of the pathological views now under consideration, with which they are so intimately connected as to require some notice.

For many years two rival theories were sustained by active controversy concerning the *primum movens* of fermentation; one set of chemists, Guy-Lussac, Berzelius and Liebig, believing that the oxygen of the air was the essential exciting cause, while others, following up the discovery of Schwann, assert that the presence of living things was necessary for the starting of the process. This latter theory—that the only true ferments consist of living structures—has gained ground of late, chiefly owing to the writings of Pasteur and Cohn. By these authors this vital theory of fermentation has been also extended to other modes of decomposition, the organisms described by Needham in rotten tissues having been given the important function of originating putrefaction; a process which is no longer, as Liebig

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*The classifications and many of the formidable names are omitted from the text as uninteresting to some readers. Cohn divides the genus Bacterium as follows (*Beitrag. z. Biol. d. Pflanzen*):

A. SPHERICAL.	B. ROD-SHAPED.	C. DESMOBACTERIA.
a Chromogene.	*a.* Termo.	*a.* Bacillus.
b. Zymogene.	*b.* Lineola.	*b.* Vibrio.
c. Pathogene.		

The above when united into masses are called Zooglöa.

Billroth calls the genus Coccobacteria Septica, and divides it into cocci and bacteria, which are subdivided, according to size, into mega- meso- and micro-coccus and bacterium respectively. When in superficial scum these are termed Petalococcus; when in chains Streptococcus; and when in masses Gliacoccus or bacterium as the case may be.

supposed, a mere chemical re-arrangement, occurring spontaneously, owing to the instability of certain nitrogenous compounds in the presence of free oxygen, but according to Cohn, a decomposition of nitrogenous, especially albuminous substances, excited by the presence of living organisms in the absence of which the process cannot go on. Bacteria are thus made to bear the same relation to putrefaction as Torulæ to fermentation.

To accept this theory, however, a very ready supply of bacteria must be everywhere forthcoming; and this leads to the important question, to which allusion must be made, however briefly. Whence do these organisms come? The theory (*a*) so warmly advocated by Pasteur, Panspermic hypothesis, is considered most orthodox; viz., that these organisms can only be developed from germs which exist in swarms in the atmosphere (*Homogenesis*), and which locate themselves in any medium suitable to their further development, and then by rapid propagation induce putrefaction. (*b*) The next view which Hallier attempts to establish is that the bacterium presents a stage, or an occasional link, in the life history of a fungus (*indirect Homogenesis*). (*c*) The third mode of origin is *Heterogenesis*, which may be defined to be development of independent beings, by means of the more perfect individualization of minute particles of matter already existing in the constitution of higher organisms. (*d*) Lastly, we come to direct development *de novo* from fluids containing organic matter (*Abiogenesis*).

Notwithstanding the efforts of many physiologists, the world does not as yet seem prepared to accept the latter modes of development. The difficulty of demonstrating the Panspermic theory is very great, and some suppose the germs to be too small to interfere with the homogeneity of a fluid. Bennett and Burdon-Sanderson deny their presence in the air; the latter says that when contamination with impure liquids or surfaces is avoided no microzymes develop.

The intimate connection between putrefactive process and the group of symptoms called septicæmia, has been regarded as established since the celebrated experiments of Gaspard; and the numerous investigations since undertaken all seem to confirm the belief that the introduction of putrid fluids into the blood of living animals produces symptoms similar to those clinically called septicæmia. Samuel, who has so far studied the pathological effects capable of being produced by putrid fluids, comes to the strange conclusion that putrefaction is divisible into three stages, in each of which, he says, the materies acts in a different way. In the 1st (*Phlogogenous*) stage, only inflammation is produced; the 2d (*Septogenous*) produces a state of putrefaction in the living body, and the 3d stage gives rise to suppuration (*Pyrogenous*). Without going as far as Samuel, the connection between septicæmia and putrefaction must be fully recognized, and the constant presence of bacteria in the latter makes it an interesting question, do these organisms occur also in the pathological condition? Panum claims the priority in answering this question by his investigations made twenty years ago. Since that time O. Weber, Billroth, and many others have followed the same question, and nearly always found bacteria in the blood or tissues. Though differing very widely from septicæmia, or acute putrid infection, in their clinical pictures, pyæmia, *i. e.*, purulent infection with secondary abscesses, and puerperal fever, are now considered genetically connected with septic disease by Burdon-Sanderson, Billroth, &c., so that they may be discussed along with septicæmia and inflammatory fever. In all this class of disease, minute organisms have been found by an innumerable host of observers who have investigated the subject. In pyæmia the secondary deposits are the favorite seat for fungi, and these scattered foci of suppuration are now commonly explained by Recklinghausen, Klebs, Orth, Helberg, as caused by micrococcus masses or colonies forming emboli, and thus originating a succession of local changes. Hüter thinks that emboli from thrombi which do not contain micrococci can not produce suppuration. Numerous experiments have been made proving the inoculability of the blood and exudations of these diseases, and Davain goes so far as to say that the virulence of the blood of animals increases in proportion to the number of times the virus has been transmitted from one to the other.

Hüter's description of organisms in the tissues affected with diphtheritic disease was followed by numerous others. Nassiloff considered that bacteria made up the greater part of the membrane. Classen found fungi in the adjoining tissues. Letzerich found numerous fungi in the kidneys, and could produce diphtheria in the stomach of rabbits by feeding them on artificially cultivated diphtheria fungi. Eberth produced a diphtheritic condition of the cornea by inoculation from infective material containing bacteria. Senator, although he found them always present, thinks that these fungi have nothing to do with the production of diphtheria. This year Letzerich has made new researches on the diphtheria fungus, and finds it in the exudation, the kidneys, tonsils, and heart. By cultivation he follows its development and describes four distinct forms, using for the demonstration of the fungi the iodine test to thin sections. The presence of dust in the air was suspected by Billroth, to be the cause of erysipelas; but the first energetic advocate of the parasitic nature of that disease was Hüter, who associated it with plegmonous diphtheritis and other infectious "wound affections," and ascribes its occurrence to "*monaden*." Orth also experimented with this object, and by the subcutaneous injection of fluid from bullæ of erysipelas which contained bacteria, produced symtoms like this disease, and found on examination the affected tissues filled with rod-shaped bacteria. These bacteria when artificially propagated, and then injected, produced similar results. Still more recently Lukomsky has performed numerous experiments which made him arrive at the following conclusion:—That when the process was in a condition of progression, the lymph vessels and spaces of the affected tissue were packed with micrococci, while in those structures where the process was abating these organisms were no longer to be found. The fluids containing fungi he found propagated a similar disease, not only when injected under the skin, but also when placed in contact with a raw surface. The want of success of many investigators in finding organisms, he attributes to the fact that the micrococci are present only in the periphery of the eruption, which he explains by their deserting a part soon after it has been attacked.

Besides the diseases which are connected with the putrefactive process or with local inflammations, bacteria have been found in all fevers, the contagious characters of which have been attributed to these organisms. As far back as 1850, Panum expressed the idea "that the development of a certain kind of fungus stood in a specific relation to cholera." Coze and Feltz considered fevers to be an internal fermentation, depending upon organisms in the blood. Hallier regards them as internal parasitic diseases, and attempts to describe the various forms of fungi observed in each. Davain and others found the highly infectious blood of malignant pustule to be filled with bacteria. Buhl, Waldeyer and Wagner describe a disease under the name of *intestinal mycosis*, which they suppose to be intimately connected with malignant pustule, and which proves most rapidly fatal with choleraic symtoms. Bollinger thinks it is only an unusual form of the latter disease.

Christot and Kiener found bacteria in the blood of a man who died of glanders, and also in the blood of several inoculated animals. Although Obermeyer does not attempt to decide whether the moving filaments he described in recurrent fever are specific, or even at all pathological, the discovery of their constant presence in this disease must be most interesting as bearing on the present question of animated pathology. The various substances found by Salisbury in the excreta of different diseases, seem unlike anything met with by other observers.

Thus we have seen that bacteria are described as occurring in a large number of diseases, differing not only very widely in their clinical history, but which have also for many centuries held places in very separate categories. The question then naturally suggests itself—How far may each of these diseases, so radically distinct in their natures, be attributed to a specific organism peculiar to itself? Hallier endeavored to answer this question, by describing a distinct form of fungus for each fever; his ideas have, however, been long since abandoned. Few other attempts have been made to draw any distinctions between the forms of fungi found in dissimilar diseases, nor indeed would the classification at present in use admit of such differentiation. Orth and Heiberg think that the spherical form of micrococcus occurs in pyæmia and puerperal fever, while in septicæmia the rod-shape (bacteria termo) predominates. The filaments found in recurrent fever by Obermeyer, seem to differ in many respects from the organisms described in other affections, but no conclusions have been, or can be drawn from this fact.

Letzerich has recently described a form of fungus which he finds in the mucus, and even air vesicles, in whooping cough, which he considers the specific cause of the disease, as he could produce true whooping cough in a rabbit (!) by means of the fungi he had removed and cultivated in a solution of sugar. He also describes differences between the diphtheritic fungi and those he found in whooping cough, in their mode of development, appearance, and action; the fungus of the latter disease does not penetrate the tissues, or tend to produce putrefaction, both of which characters are always found in the diphtheria bacteria. Klein has described some very peculiar organisms in the tissues around the lesion of typhoid fever, which seem unlike the micrococci usually met with, and may be peculiar for that disease. Billroth says, that though different modes of culture may produce various forms, according to the nutrient matter used, none differ in any essential point from those found in putrid substances outside the body. From this fact, and from the similarity which exists between the forms described in various diseases, he concludes, that up to the present no morphological distinction is known by which one can decide that a given bacterium belongs to any definite disease.

The fact that the fungi found in the blood of so many and so great a variety of diseases are, as far as at present known, exactly the same, suggests the idea that these little organisms enjoy a still wider distribution in the animal economy; and the question may naturally be asked—Do these organisms exist in normal tissue? The minute elements long known to occur in healthy blood, which Henson considered to be the products of destruction of the colorless blood-cells, Schultze and Kühne looked upon as a form of protoplasm; Lostorfer supposed them to be characteristic of syphilis; and Béchamps and Estor hold them to be the germs of bacteria (microzyma sanguinis). Bettelheim found both round and rod-shaped bodies in the living blood of healthy persons, capable of rapid movements. Nedsvetski describes a kind of dissolution, or disassociation of the granular particles which takes place in the white corpuscles, resulting in small irregular bodies of various shapes, about half the size of a corpuscle, whose ultimate destination is to break up into extremely minute particles (*hæmococci*) only visible in good light with a power of 1,000 diameters, which, he says, are capable of automatic movements(!). Ferrier, and before him Lostorfer, described bodies in healthy blood, which they call sarcinæ, which, however, did not appear until several days after the blood had been removed. Billroth discusses the question fully, and thinks that though the spores of bacteria may be introduced into the blood and tissues from the mucous surfaces, they do not develop in the healthy body, and he concludes, "that the coccobacteria spores are not in a position to assimilate the albumen in the form in which it is found in the living body."

The most recent observation on this point is a paper by E. Tiegel, in which he gives the results of a number of experiments, which show, that numerous bacteria can be developed, which could not have obtained access from without, in perfectly fresh tissue, which had been rapidly embedded in melted paraffin after removal from a recently killed animal; and from this he concludes, with Billroth, that although numerous spores exist in the tissues, they cannot develop during life. There is, then, every reason to believe, that minute organisms, or at least their germs, exist in the healthy living tissues; and it becomes daily more probable that as Beale said, "the higher life is everywhere inter-penetrated, as it were, by the lowest life; though, I dare say, physiologists are not as yet prepared to accept the views of MM. Béchamps and Estor, who consider their *microzymes* to be the great workers of development and life, which they conceive to be but processes of fermentation carried on regularly by the harmonic action of these organisms, while death and putrefaction are irregular, turbulent fermentations, caused by the undisciplined action of similar ferments."

Allowing, then, that bacteria and micrococci do exist in the tissues of many diseases, the fundamental question still remains to be answered—Are they the true *materia peccans*, the producers and propagators of disease, and the carriers of contagion?

While the supporters of the bacteria theory urge the constant occurrence of organisms in many diseases, and their power, when artificially introduced into the living body, of producing a certain set of symptoms, as an argument in favor of their being the real excitors of the corresponding pathological changes, the truth of these views is being tried by the test of searching experiment, the chief object of which naturally is, to separate the fungi from the fluid in which they lie, and then to test the relative infecting power of the organisms and the mother liquid by injection into living animals.

Among the foremost of the investigators of this subject is Bergmann, who by freezing and thawing, made the bacteria sink as a sediment, and obtained a clear fluid free from them, which however had lost nothing in infective virulence. The clear filtrate produced similar results, and induced him to conclude that the infective efficacy did not lie in the bacteria, but in a form of organic poison which he called "sepsin." Klebs considered the mode of filtering insufficient, and he and Zahn used earthenware instead of paper, by which means he obtained very different results, the filtrate producing a transient fever, whereas the bacteria fluid caused certain death. Wolff, using the same method of filtering as Klebs and Zahn, found that the filtrate had somewhat a lesser effect than the blood itself—though not as much less as Klebs described. The addition of bacteria to the filtrate, however, did not make the least difference in its power. From this he concludes that the deleterious effect of the former does not depend on the bacteria, but upon some other chemical or morphological constituent which in the process of filtering remains behind with the bacteria. Onimus found that when putrid or septicæmic blood was subjected to dialysis in water, the latter soon became crowded with a number of bacteria, but produced no symptoms of septicæmia, while one drop of the blood proved fatal. Hence he concludes that the poison is not capable of dialysis, and that the organisms which occur in putrid fluids are not the carriers of the poison, but rather the result than the cause of the putrid changes.

Billroth allows but little power to the fungi, which he thinks are not the cause of putrefaction, nor does he think they occur constantly in any form of septic disease. He believes they bear no causative relation to the production of fever, as he has found them in numbers in closed abscesses which were unaccompanied by fever, and again they could not be found in abscesses associated with very high fever. He thinks the development of bacteria depends on many complicated circumstances which we do not know, and he suggests that pus must have a certain character added to it in order to make it a suitable ground for their propagation. This character can be acquired from any acute inflammation, as all inflammation has the power of furnishing a ferment-like material which he proposes to call "phlogistic zymoid." On the presence of this, and not of the bacteria, depend the deleterious properties of some pus.

Panum, in his recently published paper, comes to very definite conclusions on this subject. He found that prolonged and intense boiling, which should destroy any living organism, had no effect on the infective power of liquids containing bacteria. Their perfectly clear filtrate, he also found, produced death. He evaporated this filtrate to dryness, digested it in alcohol, then dissolved it in water, and refiltered the aqueous solution without destroying the effect of the poison, which he considers to be of a chemical nature and soluble in water. This he proposes to call "putrid poison," and he seems to think it may be a derivative of the bacteria, although he denies that they have any direct exciting action.

Bacteria, then, far from originating in mere theory, are commonly associated with many diseases; but the exact form which this relationship will ultimately assume, it is, at present, impossible to say, for we see that even in septicæmia, the constancy of their occurrence is doubted, and their power of producing this affection is denied.

Asiatic Cholera.

Surgeon-Major Dr. **Robert Pringle**, in a paper read before the Medico-Chirurgical Society of Edinburgh, and published in the *Edinburgh Medical Journal* (September, 1874), gives the results of nearly twenty years' experience of cholera in the Bengal Presidency. The paper is one of much interest and practical value. The subject is discussed under three heads or questions.

1. What is Asiatic cholera; and where does it originate?

In reply to this question, Dr. Pringle says that cholera is the result of a poison introduced into the system; and that the symptoms, such as vomiting and purging, with cramps and collapse, are due, the former to the efforts of nature to expel the poison, and the latter to the influence of the poison on the nervous system and the circulation. The author has known cases fatal within three hours from the commencement in persons previously quite healthy, and in some of these instances not more than one characteristic evacuation has occurred. In such cases, the fatal result is attributed to the non-exit of the poison. On the other hand, reference is made to the numerous instances of spontaneous recovery amongst religious pilgrims who, having been turned out of crowded lodgings into the open street, or having been struck down in the road, have rallied from the collapse of cholera, with but too visible proofs around of Nature's successful efforts to emit the poison. Now, nothing whatever had been done for these cases, and yet they were slowly *coming to life again;* and these wonderful recoveries were only equaled by the marvelous power of regaining strength to rise up, and, in the case of pilgrims, to renew their journey homewards.

2. How does the disease spread; and what are the best means to prevent its spreading?

To this the answer is, that the disease spreads through the agency of poison which, like the small-pox poison, multiplying indefinitely within the bodies of the sick, is ejected by vomiting and purging, and then contaminates the air and the water; and the way to prevent the diffusion of the poison is to confine it as far as possible within narrow limits, and then to destroy it. "One of the most fertile means of spreading the disease is water; and among a water-drinking population like that of India, who obtain their supply from wells and ponds, and whose sanitary habits of ablution are too well known, and too often witnessed on the margins of ponds and canals to require description, it need excite no wonder if cholera sweeps off its victims by hundreds." The author believes, from personal experience obtained while in medical charge of the station of Juggernauth, that one of the most active agents in the spread of cholera amongst Indian pilgrims is the so-called "holy food" upon which they chiefly live while at the shrine of Juggernauth. This food is composed of vegetables, chiefly of the melon kind, in various stages of decomposition, and doubtless often containing the germs of the cholera-poison, introduced by the impure water used in cooking, and increased by the filthy state of the sheds in which the food is prepared. This food is sent all over India, and is believed by Dr. Pringle to be a frequent source of *apparently unaccountable* outbreaks of cholera. He has great faith in the preventive influence of quarantine in a port, and a *cordon de santé* on land; but he very sensibly remarks that, in order to be effective, they must be thoroughly strict and close. Anything short of this does more harm than good, since it leads to concealment, which allows the disease to spread unobserved, from fear of the punishment attending its discovery. When, therefore, precautionary measures cannot be thoroughly carried out, they had much better not be attempted. The author states, as a result of seven years' experience at the civil sanitarium of Mussorie and the military convalescent dépôt at Landour, both in the Himalayahs, that not a single case of cholera occurred in which the disease was not the result of a visit to the cholera-infected plains within a period of three days from the onset of the symptoms. In the cholera epidemic of 1872, it was thought that an exception to this rule had occurred, and that a case of true cholera had originated in Mussorie. The sufferer was a cow-feeder living in the centre of Mussorie, and was supposed never to have left the station. Dr. Pringle, however, found, on making close inquiry, that the man had gone with some cows to a village in the plains where cholera was present, and had returned the same day. This visit to an infected locality had occurred three days before he was fatally seized with cholera. A strict *cordon de santé* was supposed to exist between the sanitarium and the infected plains five or six miles distant; hence the concealment regarding this man's visit to his village, which must have been well known to his neighbors. This case affords a good illustration of the difficulties in the way of an attempt to trace the source of infection.

3. The third question which the author discusses is, What is the treatment recommended? And this question he answers as follows: "Do not check the efforts of nature to throw off the poison. On the contrary, aid them judiciously, by draughts of tepid water, to dilute and emit the poison; and, if necessary, even small doses of castor oil (the indigenous mild laxative of the country where cholera may be said to be endemic); tepid water injections; and the employment of every known remedy, except the administration of spirituous stimulants, to restore the tone of the circulation, and to bring back the natural heat; but, above all, *judicious and persevering nursing.*" "Such," he adds, "briefly are my views, some if not most of which have been advanced by others, but chiefly by Dr. George Johnson in his *Notes on Cholera.*"

The author goes on to remark that one of the chief difficulties in carrying out a treatment based on the elimination theory is in avoiding excessive evacuation, whereby the danger of the disease may be increased. He believes that the cases are few in which the natural eliminative efforts require much assistance from drugs, whether of an emetic or a purgative character. Tepid water emetics and tepid water enemata he considers to be the best evacuants in the great majority of cases; while, in some few cases, castor oil may be given as a mild laxative. On the other hand, all medicines that tend to check vomiting and purging, more especially opium, are believed to act injuriously.

The entire paper, of which we have here given a brief abstract, will well repay attentive perusal.

The Etiology of Scarlatina.

Dr. Wm. H. Bramblett, of Newbern, Pulaski county, Va., says in the Transactions of the Virginia State Medical Society:—

The following cases bearing on this question have come under my own observation, and seem to indicate the *possible spontaneous origin* of the disease:

Case 1. In July, 1867, I was called to see John J., æt. 10 years, who had been sick for two or three days. I found him in bed with an eruption on the skin, having the well known characteristics of scarlatina; tongue red, and presenting the clean, characteristic strawberry appearance; considerable febrile excitement; throat inflamed and sore. Appropriate remedies were used, and the case passed through without complications, and terminated in recovery. Desquamation occurred as usual.

Though diligent effort was made, this case could be traced to no source of contagion. Scarlet fever did not then prevail, nor had it prevailed in the county, or any of the adjoining counties, for several years. So far as could be ascertained, none of the family had been where the disease was, nor had any one from an infected locality visited the house. In the family were ten children, the four older than the patient having had the disease ten years before; those younger did not take the disease at all, or if so, it was so slight that it was not noticed. The house was new, and had never been occupied by any other family. The contagious principle could not, therefore, have been lurking in the house; nor is it reasonable to suppose that it had lain dormant in any of the clothing for the past ten years, as every article must have been handled many times during the ten years following the first appearance of the disease in the family.

Cases 2 and 3. J. B. and E. B., æt. respectively 10 and 8 years; sisters, and the elder of four children, came under treatment in April, 1868. They had well marked scarlet fever, with the characteristic eruption, of the anginose variety. They were attacked almost simultaneously. The disease passed through its usual course, without sequelæ, to recovery. Desquamation occurred as usual. The younger brother and sister did not take the disease from their sisters, nor did it spread to the children of the village, a place of three hundred inhabitants. The origin of these two cases, like the first, could be traced to no source of contagion.

Cases 4 and 5 came under observation August 28, 1869. Susan O. and John O., brother and sister, æt. respectively 9 and 7 years—the two eldest of a family of four children. The disease came on with the usual symptoms; both were attacked simultaneously; the eruption was characteristic, with the anginose symptoms predominating. The disease in both cases passed through the usual course to perfect recovery, with desquamation at the usual time. The two younger children of the family did not take the disease, nor did any other family in the neighborhood contract it from them. The family, of which these two cases were members, lived in an isolated, out-of-the-way place, with but few neighbors. It was rare for any of the family to go out of the county; and at this time there were no other cases in the county. A stranger at the house was an unusual occurrence. These children had lived in this house all their. lives, nor had' they been away to school or anywhere else. Nothing with regard to clothing rendered it possible that the disease had a source of this kind for its origin. So, it may be stated absolutely, that these cases could be traced to none of the supposed usual sources of infection.

Case 6. Charles D., æt. 6 years. Visited this patient May 7, 1873. He had been ailing for several days; found him with well marked scarlatinous eruption; sore throat; tongue presenting the characteristic strawberry appearance. The patient passed through the usual course of the disease to recovery. The sister, aged 4 years, had at the same time considerable sore throat, but no eruption of the skin. These cases, like the two preceding, lived in an isolated, out-of-the-way place; and the statement in the preceding reports of cases, with regard to the absence of sources of contagion, applies to these cases with even more force. To say, absolutely, that none of the supposed ordinary sources of contagion could have operated here, would be perfectly within the bounds of reason, and justified by fact. I should add that an epidemic of this disease prevailed in the county twelve months before these cases occurred, and about which I will have more to say hereafter.

Case 7. Was called, June 10, 1874, to see P. G , æt. 3 years; found him very ill indeed; had been sick for three days. The skin presented the characteristic eruption; the tongue and teeth were covered with sordes, and the fauces was in a sphacelating condition; great restlessness, with all the phenomena of the malignant form of the disease. The submaxillary glands were greatly inflamed and enlarged. Tincture of iron, chlorate of potash, quinine, and stimulants were given internally; a detergent wash for the throat was used, and tincture of iodine applied locally to the inflamed glands. After struggling through a tedious course, convalescence was established, which went on to perfect recovery. Desquamation occurred at the usual time, the palms of the hands and fingers peeled off almost solid. This case, of a very poor family, like the preceding cases, lived in an isolated and out of-the-way place, and none of the supposed ordinary sources of contagion could be discovered. No other cases occurred at or about the same time in the county, and none since Case No. VI. This and the preceding are the only cases that have occurred in the county since the epidemic of the spring of 1872. I should have stated that none of the family, in which the last case reported occurred, had probably been out of the county in the last five years, and that they had probably not had a visitor from outside the county limits for that period.

In this county (Pulaski) the epidemic of the spring of 1872 was very mild. But few of the cases were characterized by the usual dermal eruption, most of them being of the irregular form. Almost universally sore throat prevailed among the children of the county, and in some the glandular system suffered severely, with no other local manifestation of the disease. The appearance of this epidemic in the county, I am unable to trace to importation. It seemed to spring up simultaneously in several localities, and to spread to all parts of the county from those different foci. That the supposed ordinary source of contagion was not concerned in the start of this epidemic appears to the writer satisfactory.

In an adjoining county, in 1859, I witnessed an epidemic of scarlet fever in its most virulent form. It seemed to affect the children of almost the entire community, and to spread to the cabins of the poor in the gorges of the mountains from no ordinary source of contagion. These simple-minded people, alarmed at the approach of any disease, would give a wide berth to every house where the disease was; and to any one from an infected house or community, the hospitality of their cabins was denied; but nothing prevailed to keep the dreaded pestilence away.

The cases above related have all occurred in the last seven years, in a practice by no means very extensive. I had, before my attention was specially called to the probable often spontaneous development of the disease, independent of the ordinary sources of infection or contagion, met with a number of similar cases, of which no note was taken.

The facts in the cases above reported, together with those in the epidemics alluded to, justify the following conclusions:

1st. That the spontaneous development, independent of contagion, of scarlatina is by no means rare; and that it is, in the country, and unquestionably in cities also, continually arising *de novo.*

2d. That scarlatina, like influenza, is dependent upon the atmosphere, under certain circumstances, for its causation; that it may originate from atmospheric influences, but, when once developed, may be propagated by contagion.

3d. That most of those who write on the subject of scarlatina practice in large cities, or in densely populated countries—localities unsuited to the investigation of the subject of contagion or non-contagion—and attribute to the disease a degree of contagion that does not belong to it. Those who practice in large cities and densely populated communities regard the disease as essentially and only contagious, because their surroundings do not admit of such a study of its etiology as can be had in sparsely settled communities. If a case arise that cannot be traced to any individual source of infection in a large city, how easy is it to attribute it to infected clothing or to some infected individual encountered on the street! In sparsely settled communities, the etiology of this disease can be studied—disconnected from crowds into which, in large cities, sources of contagion are always presumed to run, when no individual source of contagion can be discovered—and if it proceeded from contagion, to determine the source from which it came.

With some able writers, scarlatina is the most contagious, and at the same time the least contagious of all diseases. Such logic I am unable to comprehend. Why not admit that the disease may arise spontaneously, and when it thus arises, may or may not spread by contagion? This would be more in accord with fact, and the logic vastly more consistent. All writers and practitioners are agreed that typhoid fever is continually arising spontaneously, independent of any individual source of contagion, and when once thus developed from a local cause, may or may not spread by contagion to other individuals. Why admit this as regards one and not as regards the other, when the morbific agents, though very different, are yet so much alike in the development and propogation of the two diseases? Washerwomen, who inhale the effluvia arising from the clothing of typhoid fever patients, may take the disease arising from such source; and so might scarlatina be contracted from the recently cast-off clothing of a scarlatinous patient. But the conclusion that the poison is thus often carried to any distance is, at least questionable, in view of the fact that the disease may be found of frequent spontaneous origin.

The questions of contagion from infected clothing and at long distances, or the frequent spontaneous development of scarlatina, will, I think, have to be settled by the country practitioner.. The city practitioner is not in a situation to determine which, if any, cases arises spontaneously, or which from contagion—his sources of contagion, when they cannot be traced to individuals, always running into crowds where they are lost, or to infected clothing that may have no existence.

If I can incite my confreres, especially those who, like myself, live in sparsely settled communities, to a careful investigation of this subject, the main object of this paper will have been accomplished.

V. ANIMAL AND VEGETABLE PARASITES.

Treatment of Tænia.

At a meeting of the St. Louis Medical Society, reported in the *Medical and Surgical Journal*, of that city, for November, 1874, Dr. NEWMAN presented a pathological specimen—a tænia. This, said he, is the sequel to a case which I reported four or five months ago. At that time I supposed I had secured the head of the worm, and that the entire worm had been removed. Dr. Dean assured me that I had not obtained the head; probably from one to three feet remained, and that I would likely hear more of it in four or five months. Patient afterward informed me that she was passing small, short worms which moved about—I supposed them to be round worms, and gave a decoction of spigelia Marylandica and aloes, but no worms passed. I then gave calomel, gr. x. and santonin gr. ij., followed by the above decoction, and afterward by a dose of turpentine. Fifteen feet of tape-worm were soon expelled. Note the rapidity with which the tænia re-formed; in five or six months it had grown larger, longer and wider than before, and the indications are that a large part still remains.

Dr. Newland stated that his favorite remedy for expelling tænia was kameela or rottlera, either tincture or pulvis. It comes from Abyssinia, and is found in the drug stores.

Dr. Keuckelhan preferred kameela to all other remedies for expelling tænia, viz:

℞. Kameela, or pulv. rottlera, ʒij.
Etheral ext. felicis mas., ʒiss.
Syr. simplicis, ʒij.

M. Sig. Half at once; remainder in two hours, if necessary.

My next best remedy is a drachm of the bark of the root of the pomegranate. The bark must be fresh or it is useless.

Dr. Faber used the same remedy (kameela) frequently and successfully. In one case, however, recently, it failed to expel the worm; another physician was called, who gave kousso, and the worm passed soon afterward. Felix mas is good, but kameela is far more effective in my practice.

Dr. Rumbold recently expelled a tænia with the following:

℞. Acidi carbolici, gr. xx,
Aquæ destill, ℥viij.

M. Sig. One-third every two hours.

Carbolic Acid in Tænia.

The vaunted virtues of carbolic acid are rendered doubtful by the following case reported in the Philadelphia *Medical Times*, November 7th, 1874, by Dr. P. F. HARVEY:

Dr. C., a physician of middle age, consulted me April 22 of this year, on account of a tape-worm that had troubled him for a considerable period, the removal of which he had attempted but a short time previous. From several cases that I had seen reported as successfully treated with carbolic acid, I suggested this remedy as likely to destroy the parasite in his case. Concurring in my opinion, he began on the following morning by taking simultaneously one ounce of castor-oil and two pills of pure carbolic acid, each containing one grain. This dose was followed by two of the pills every two hours until sixteen had been taken. During that day there was no restriction of diet.

April 24, morning.—A powder of rhubarb and jalap, of each ten grains, was taken. One ounce of castor-oil was given at 5 o'clock p. m. At bedtime patient took two carbolic-acid pills, with three comp. cath. pills. Diet restricted to a cup of coffee for breakfast.

April 25, morning.—One ounce of sulphate of magnesium was administered, together with two carbolic acid pills. Waited till 3 o'clock p. m.; from that time until 9 o'clock p. m. the patient took four carbolic acid pills every two hours, making eighteen pills taken during the day. Fasted until noon, eating very sparingly then, and taking a plate of soup at 3 o'clock p. m.

April 26.—At 7 o'clock a. m. took one ounce of castor-oil, with forty-five drops of turpentine, accompanying the dose with three carbolic-acid pills. At 10 30 a. m. took one-half ounce of kousso. Fasted the entire day. At 1 o'clock p. m. passed four or five feet of tænia; at the same time he took two croton-oil pills, each containing one-half drop of the oil, and an injection of one ounce of magnes. sulph., in eight ounces of water, was adminstered. At 3 o'clock p. m. took one ounce of castor-oil. At 4.30 o'clock p. m. passed a *tænia medio-canellata* entire, twenty-five feet in length, and at the same time a small one, eight inches long.

Remarks.—The treatment was commenced by giving sixteen grains of pure carbolic acid, in divided doses, on the first day; ten grains were given on the second day, eighteen grains on the third day, and three grains on the fourth day; using aperients and cathartics freely, and keeping the primæ viæ free by abstinence from food. Thus within three days *forty seven* grains of pure phenic acid were given without accomplishing the dislodgement of the worm, although amply assisted by free catharsis. Both Dr. C. and myself were of the opinion that the effect of the acid upon the parasite was nearly if not quite nugatory. The kousso, aided by evacuants, acted promptly and thoroughly. In two and a half hours after its exhibition the worm began to pass, and by keeping up the evacuant action the two entozoa were passed entire within six hours after the anthelmintic had been given.

Pumpkin Seed for Tænia.

On this topic Dr. C. B. White says in the *Pacific Medical and Surgical Journal*, September, 1874 :—

Fortunately for the human race, this entozoon is not common, but an observation of fifteen years leads me to believe that, for its expulsion from the human subject, there is no more reliable agent than the seeds of Cucurbita Pepo, or common pumpkin.

I have not used any preparations of the phenols for this purpose, therefore I do not impugn their reliability ; but I have observed several times the successful use of pumpkin seeds in cases where other vermicide remedies had previously been administered, with no apparent result. The directions in the United States Dispensatory for the use of this agent are good, but I prefer the plan followed in the Southern States of making an emulsion, with hot or cold water. of the seeds, previously deprived of their outer covering and coarsely powdered or broken up.

It would appear that the reptile takes the seeds as food, so it is my rule to advise a considerable fast (usually over two meals, at least), then the pumpkin seeds, in a dose of about two ounces, and, in about four hours after, two ounces of castor-oil.

Should not all the worm be found in the evacuations, a second dose should be administered two days afterwards, with the same precautions as before; but this repetition is scarcely necessary, and the failure is probably due to the fast being too slight.

There is one difficulty in observing the stools after this remedy, namely, the similarity in appearance of the fragments of the seeds and of the smaller joints of the worm.

Parasites in the Lower Animals.

At a meeting of the St. Louis Medical Society reported in the Missouri *Clinical Record*, October, 1874,

Dr. Dean exhibited specimens of animal and vegetable parasites infesting swine, beeves and chickens. In 1,000 dressed hogs sold in the city markets, 13 or 1.3 per cent, were found infected by trichinæ. Of five hundred hogs examined for Rainey's bodies, or psorospermal sacks (*Synchytrium ? Miescherianum*, Kuhn), vegetable parasites, etc., seven per cent, were found infected. In one hundred beeves three were infected. On an examination of rats caught about the slaughter houses *all* were found to contain trichinæ. Of eighteen hogs examined, each had from six to eight hydatid cysts in its liver, and some of them had cysts in other organs. These cysts contained millions of ecchinococci, and these livers were thrown away in reach of dogs. Almost every hog contained a large number of the round worms (*Ascaris lumbricoides*) infesting man, sometimes the intestine was almost completely obstructed by them. These hogs also contained a number of hollow worms (*Echinorhynchus Gigas*). These last worms hang by their hooks upon the intestinal walls. In a portion of intestine fifteen inches long, exhibited, there were a dozen worms. These worms sometimes penetrate the intestinal wall and pass into the peritoneal cavity. They have been found in man also. In one stage they live in the white grub or larva of the May-bug; and with these hosts are taken into the *primæ* *viæ* of the swine. In examining the hogs mentioned above, a large number of worms, *Strongylus dentatus*, were found in the pelvis of the kidneys, in the leaf-lard, etc., etc. These little worms are the same as those found in swine in Brazil and in Australia.

Dr. Dean gave an account of the literature concerning the last worm from Diesing to the present time. It is thought by some that these worms play an important part in the production of hog cholera. In the connnective tissue under the skin of chickens he found white cysts, the size of pins' heads, containing apparently amorphous or anhistic matter. He did not yet know whether they were of animal or vegetable nature. In the pleuro-peritoneal cavity of the same fowls he found a large number of viviparous mites, the species of which he had not yet determined, apparently a Tyroglyphus. He also found one inside the pericardium, and some in the trachea. They were some time under the endothelium as itch mites are under the epithelium. Since this discovery he had found that Mr. Robertson, demonstrator of anatomy in the University of Oxford, in 1869, found somewhat different mites in the connective tissue under the skin, on the pericardium, and along the outside of the walls of the large blood vessels, in the pigeon. Col. Montague afterward found them in the gannet, and still later Mr. Robertson found them in the pelican. The pleuro-peritoneal cavity of most birds is connected by cellular cavities with the lungs, and some of the mites having closed air-sacks, respire by a kind of diosmosis. In the intestinal wall of the same fowl, Dr. Dean found cysts visible and removable through either the serous or mucous side, and each contained a single larva (in one case two) of a nematoid or round-worm, which would appear to a superficial observer to be trichinæ, in the encysted or larval stage. This larva is, so far as he knew, hitherto unknown. These mites and worms he finds are common in the chickens of this market. A more complete description he postponed to another time or place. He wished to correct an error that occurred in the discussions before the Society; *trichiniasis* and *trichinosis* are synonyms for the trichinous affection in all its stages, and do not designate respectively the disease when the trichinæ are in the muscles and when they are in the intestines. Vogel and Rupprecht designate three stages of trichinosis: first, that of *Ingression*, lasting about eight days to the beginning of the emigration of the embryos; second, the stage of *Digression*, when they wander in the muscles, lasting three to four weeks and passing into the third, or stage of *Regression*. In the meeting of January 31st, he intended to say that instead of two species of tape-worms there are more than twenty species in the order of Cestopedes infesting man and domestic quadrupeds alone; more than two hundred and thirty species are known.

Anthelmintic Action of Strychnia.

Dr. A. R. Kilpatrick of Navasota, Texas, writes to the *American Medical Weekly*, September 26, 1874.

In the March number of your Journal, is a letter from a physician of Houston, Texas, inquiring if strychnia and columbo were ever known to be possessed of anthelmintic properties, or used as such.

As there has been no answer made to his inquiry, I will state that I have found the strychnia and podophyllin to expel worms, (lumbrici and ascarides,) when they were given for other purposes, without the suspicion of worms being present, and the patients improved rapidly afterwards. The strychnia was given in doses of 1-32d part of a grain, t. i. d.

A physician of my acquaintance informed me a few years ago that he treated a negro woman for tænia solium, who had been treated by others unsuccessfully. She was passing segments of the worm at intervals, so there was no question about the case. His ℞ was one-twelfth of a grain each of strychnine, arsenic, and corrosive sublimate in pills, taking a dose t. i. d. It had the desired effect, causing the discharge of portions frequently, until after a year's treatment, she was entirely relieved and became sound and well. She took the medicine only when she was suffering, leaving it off at irregular intervals. I saw about twenty feet of the worm myself, preserved in alcohol.

Asarum as an Anthelmintic.

Dr. Samuel S. Bond, of Washington, writes to the Philadelphia *Medical Times*, September 26, 1874:—

Very recent writers adhere to the long-entertained opinion that the oxyuris infests only the lower portion of the large intestine. But a single writer, so far as I have been able to ascertain (Dr. Cobbold), locates the residence, or, as he expresses it, the head-quarters, of these worms high up in the colon, even the cæcum. I am inclined to accept this theory, for, as the doctor says, "if they were confined to the rectum the injections would afford permanent relief." Such we know, however, is not the case; partial relief only is obtained for a limited period, which period I take to be merely the time required for the oxyuris from above to migrate to the lower bowel in quantities sufficient to call attention to their presence there.

While in the drug store of Mr. Schafhirt, several months ago, he remarked to me that the compound syrup of asarum was found in a great number of my prescriptions, and inquired if I had ever noticed its effects upon the oxyuris, stating at the same time that he had accidentally discovered it to be an excellent remedy for them.

At that time I had never noticed the effect he claimed it produced, and I observed that the fact, if fact it was, was entirely novel to me.

I had been a sufferer myself from these pests for many years, but for a long time had ceased to use remedies for the purpose of trying to get rid of them, having failed to obtain permanent relief so frequently before. Bearing in mind the remarks of the druggist, I recollected that for several months past I had not been annoyed as usual by these worms, and that about the time of their disappearance I had used a considerable quantity of the compound syrup of asarum in the mixtures I was then taking for a cough. This disposed me to consider the subject as worthy of future observation and investigation.

Having among my families many children and a few adults annoyed with these worms, I resolved to test the remedy and give the drug a fair and thorough trial in a number of cases. The results of my experiments have proved far more satisfactory and gratifying than I had anticipated, and I am thoroughly convinced that it is a valuable and reliable remedy, far more so than any other drug I have ever used for the same purpose, exhibiting in its action an almost specific effect.

I have used it now for many months, and with very decided benefit in many cases, the worms so far having failed to re-appear. With quite young children I usually administer it in the form of the compound syrup, as prepared from the non-officinal formula of Dr. C., while for older children and adults I use a strong infusion, or give it in substance, in some cases the patients chewing it as they would liquorice-root, as much as half an ounce daily.

I usually commence the treatment by evacuating the intestinal canal by means of a cathartic, and generally follow with senna, using also nightly, for two successive nights, injections of a cold infusion of quassia, after which the internal use of the asarum for a week or ten days usually effects a cure.

Should the remedy prove as successful in the hands of others, and its anthelmintic character be established, it will supply a want which has long existed, being so devoid of danger in its nature that it can be freely administered to persons of every age and condition, and its cheapness bringing it within the means of the most indigent, while its pleasant aromatic taste renders it acceptable to children, when more nauseating medicines would be with much difficulty swallowed.

This experience is given to the profession in the hope that others may be induced to test the subject and state the result through the medical press.

A New Parasiticide.

Dr J. Fayrer, in an article on the Indian ring-worm in the *Medical Times and Gazette*, October 24, 1874, says of this disease:—

Europeans when in India, and occasionally after their return to Europe, are liable to certain troublesome eruptions on the skin of the trunk and extremities, which, becoming chronic, are not only the source of considerable annoyance, but often somewhat tedious in yielding to treatment.

One variety of the eruptions I refer to—commonly described as ring-worm—assumes the form of reddish slightly raised spots, which rapidly spread as rings, encircling patches of sound skin, varying in size from a split-pea to that of a shilling or even larger, with a slightly furfuraceous desquamation, and giving rise to much irritation and itching. They sometimes remain few and far between, but are apt to spread over all parts of the body or limbs.

This eruption is due either to herpes or tinea circinatus, but probably, in many cases, to a combination of both these; the initiatory patch of furfuraceous herpes circinatus becoming a congenial nidus for the subsequent development of the trichophyton of the tinea. Such, I would suggest, is the pathology of the eruption generally seen and spoken of as ring-worm in India, though it is probable that other forms of eruption, such as lichen circumscriptus, erythema, and psoriasis guttata, are at times included under the same designation.

Another form of eruption to which I would allude is probably rather to be referred to chloasma. It affects the groins, the inner sides of the thighs, and those delicate surfaces of the integument that are prone to be the seat of moisture, as well as other parts of the integument. It generally makes its appearance, and is most troublesome during the hot and damp seasons.

The remedy that I have found to be most certainly and rapidly effective is the solution in common vinegar or lemon-juice of Goa powder. This rarely fails to effect complete removal of the disease after two or three applications repeated daily.

The mode of application is to dissolve a few grains of the powder in common vinegar or lemon-juice to about the consistency of cream, and then paint the solution over the eruption and for a little distance beyond its margin on to the sound skin. It causes no pain at first, but in the course of a few hours there is a sensation of a dull heavy nature, as though the skin had been bruised, the eruption becoming white, whilst the surrounding skin is stained of a dark color. The sense of uneasiness, however, soon passes away, and the integument re-assumes its natural character; all traces of the disease disappear at the same time. Should any vestiges of the eruption remain, or any indications of its return appear, a fresh application should be made. In a few days the dark discoloration of the skin begins to fade, gradually merging into the normal tint. At the same time a change takes place in the eruption, which gradually regains the natural color of the skin; and by the time that the discoloration caused by the powder has disappeared, that of the eruption has also passed away, and the patient is well. Of course, it cannot be expected that these favorable results will always follow immediately. In chronic cases there is more obstinacy, and several repetitions of the application may be needed; but in recent examples the result will generally be rapidly favorable.

The powder is efficacious also in the other eruption affecting the groins and other parts of the body, to which I have referred. In this it is especially necessary that most perfect cleanliness and thorough drying after bathing should be carefully attended to. It is probable that the removal of this form of disease may not be so speedy as in the case of the ringworm: but generally it will yield sooner or later to the remedy.

As the eruptions I have described are probably chiefly due to the presence of a parasite grafted on a previously diseased condition of the skin, the efficacy of the Goa powder evidently lies in its parasiticidal properties, one or two applications completely destroying the germs, and probably acting also as a healthy stimulant to the disordered condition of the skin that preceded and encouraged the growth and development of the parasite; it soon restores the part to health, and, it has appeared to me, with more certainty than any of the remedies hitherto in use. I would suggest the more extended use of this powder, as I am not aware that it has as yet become very generally known.

I regret that I am unable to state precisely what Goa powder consists of, but believe it to be a production of the vegetable kingdom. It is a fine yellowish powder without smell or taste, and under the microscope presenting no marks of structure. It partially dissolves in vinegar. lemon-juice, and alcohol, and may be thus applied. It is sold by the chemists in Calcutta and Bombay.

Aspergilli of the Ear.

At a meeting of the Boston Medical Society, reported in the New York *Medical Journal*, Dr. GREEN showed three specimens of vegetable parasitic growths, recently removed from the external auditory meatus. Two of them consisted of masses of whitish flakes closely resembling, in their gross appearance, flakes of macerated epidermis; under the microscope they are seen to consist of a parasitic growth in which the stalks of mycelium were closely interwoven, forming a membranous structure, and among these were innumerable minute spores. The fructification could not be determined in these specimens, but the growths seemed to belong to the lower form of parasites known as penicillium.

The third specimen was unusual in that it showed many of the characteristics of aspergillus, except in its color, which was a bright red. It was taken from a patient suffering from slight chronic eczema of the meatus, whose ear, when seen at one visit, was entirely free from the growth, but, when examined four days after, was partially filled with a large number of bright-red flakes. The parasite had, however, produced no symptoms, and after removal the meatus was free from any irritation which could be referred to the growth. An examination of the masses showed a mycelial growth of large size, with a stalk here and there which ended in a small round head resembling a young sporangium of the aspergillus; in the examination which had been made, however, none of these heads could be found with the spores attached. Great numbers of very large free spores, of a pale-reddish color, were seen in thick clusters, and the collection of these gave the peculiar color to the mass.

The only two varieties of the aspergillus heretofore described from the auditory meatus have been the aspergillus glaucus and aspergillus nigricans, so designated from the color of their spores, and, if this is also of the same family, which the size and general appearance of both mycelium and spores seem to justify us in assuming, we have a third variety, aspergillus rubens.

Dr. Green said that he was inclined not to ascribe so much importance, clinically, to these parasitic growths in the ear as had been done by some writers. In examining a large number of masses removed from the ear—flakes of epidermis, cerumen, dried pus, etc.—he had frequently found parasitic growths of the penicillium forms, and in a few cases well-marked aspergillus, which had produced no inflammation or other symptom. He would divide the cases of aspergillus, clinically, into three varieties: 1. Those in which the parasite appeared in an already diseased ear, and in which it produced no new symptoms or any increase in the previous symptoms; 2. Those in which it appeared in an already diseased ear, but produced a marked increase of an existing inflammation; 3. Those in which the parasite is the direct and sole cause of inflammation, the cases of true myringomikosis of Wreden. Where the parasite existed the indication for treatment was, of course, to get rid of it, for we were as yet unable to say what were the causes of its innocence in some cases, and injuriousness in others.

CLINICAL MEDICINE.

1. GENERAL AND CONSTITUTIONAL DISEASES.

The Relation of Life to Disease.

Dr. J. **Russell Reynolds**, Professor of Medicine in the University College, London, in a lecture delivered last fall, given in the *Irish Hospital Gazette*, September 1, 1874, says:—

Notwithstanding that much of the traditional mystery, which obscured the facts of life, has been removed, that we have resolved many so-called living actions into chemical and physical processes, and have described them in other than "vital" terms, it may still be questioned whether or no we have advanced many steps in the solution of the ultimate and real mystery of life. Life itself is the special property or condition of the special material which effects the relation between physical force and vital acts, and is as far from comprehension now as it was a thousand years ago. That which alone justifies the attribution to any organic body of the attribute of life, is the possession of an individual power of behaving in such a way under given circumstances, and amidst the brunt of conflicting forces, and surrounded by varying materials, that it evolves the phenomena we designate as vital. By losing sight of, or underrating the primary fact of life, we deprive ourselves of the information to be gained from a study of subjective symptoms, paying but little attention to the accounts which patients give us of themselves, their ideas, emotions, feelings, and physical sensations. Morbid sensations and wrong notions are integral parts of the disease we have to study as a whole, and we are bound to interpret their value for ourselves; but we can ill afford to set them aside, when we are as yet but in the dawn of scientific pathology, and are endeavoring to clear away the obstacles that hide the truths we hope hereafter to see more clearly about the mystery of disordered life. The value of such symptoms may be slight in some kinds of disease, when compared with that of those phenomena which may be directly observed; but we are bound to remember that there are many affections of which they furnish the earliest indication, and there are not a few of which they are throughout the only signs.

Again, we often misdirect our therapeutic efforts by eliciting vital action, rather than conserving vital force. We see that, by giving such and such drugs, we change —and, as it seems, for the better—the mere processes of life; we may limit or increase muscular movements; we may augment the quality of secretion here, or of excretion there. But do we not often see that, when we have effected these changes, when we have given diuretics, purgatives, diaphoretics, and the like, and have witnessed their appropriate physical results, the disease is no better than before, and the patient is worse? We have brought vital processes into play, but have used up the vital force in doing so. In the same way the mischief that is being done by the abuse of that valuable therapeutic agent, electricity, is grave and manifold. It has again and again been used when it could by no possibility have been productive of the slightest advantage. Muscles and nerves have been driven into action when they needed rest; but that which has guided the practitioner into such mistaken practice has been the notion that to evolve function was the great end of treatment, whereas what was really needed was a conservation of the central nutrition, and a consequent addition to the stock of vital force. Rest, food, cod-liver oil, and soothing drugs, were needed; and not faradisation, alcohol, or strychnia. And, again, by ignoring the facts of life, we lose sight of many of the most important causes of disease. We are again and again compelled to say we can find no cause for the particular malady presented to us in this person and in that. We fall back upon constitution, predisposition, hereditary taint, and other easily employed but most inadequately examined and utterly uncomprehended words, to account for what we do not know and can by no means explain; and by the use of such phrases we only shunt the etiology into a siding, or throw back for one or two generations that which is inexplicable in the present. There is something radically and essentially wrong in that upon which all the so-called "causes of disease" are brought to bear; and we are driven by the facts of daily experience to believe that the organism—the living material which, by virtue of its own endowments, determines, in obedience to external impressions, all vital acts—is in itself at fault; and that its departures from the normal condition vary, and are different the one from the other, in such way as to produce those various modifications of structure and function which we term "constitutional diseases."

Morbid Nervous Action as a Cause of Disease.

Dr. J. P. Creveling, of Auburn, New York, in an article in the *New York Medical Journal*, November, 1874, says on this theme:—

Why not attribute some diseased action to the nervous system, the central axis of all vitality? Is it not reasonable to presume it may be the first to respond to morbid impressions? It may seem more scientific to some to study cryptogamic fungi, because they can view them as something organized, while vitalism is entirely beyond our comprehension; we cannot view it with the microscope or cause it to react with the most delicate tests, yet we know it exists; its manifestations we see and recognize. Fungi we may see in substance, but further than that we know nothing about them; their growth and their characteristics have baffled the closest observer. The germs of animal and vegetable life pervade all matter; even in health every organ or system of organs has its own parasites peculiar to its structure.

Now, cannot morbid nerve-influence transform these germs into a mature growth that the enthusiastic microscopist might call fungi? The origin of the one is as possible as the other. It is by induction alone that all true logical conclusions are drawn; the true logic of all physical sciences is based upon induction. We know certain diseases or conditions will produce certain effects, under certain circumstances, and that certain impressions upon the nervous system are capable of producing certain results. Now, by analogy we can trace the primary cause of many diseases, at present attributed to other causes, to perverted nerve-influence. Consult the logic of many of these enthusiastic humoralists; in their eager search for microscopic formations they have entirely lost sight of vitalism, the great *animus* of all life, or rather life itself. Life may be said to be matter animated by a vital force. The nervous system is the generator of that force, and, presiding over every molecular change, regulating every nutritive and secretory process, and governing every vital action, may it not be responsible for most of the diseased as well as healthy action?

We know that interrupted and perverted nerve-force will produce interrupted or perverted vital action; this is simply according to physiological law. Observation has taught us that certain diseases produce symptoms and lesions peculiar to themselves; yet their real nature we do not know; we see and recognize their manifestations as we do those of vital force, but we do not consider them the cause of the morbid action; we know they are its results, and, if we should find a few microscopic formations, might we not consider them, too, a result? The term blood-poison has been used in its most expanded and comprehensive sense; it has covered every obscure and unsatisfactory disease, and cloaked the ignorant and unscientific. Medicine is not so clear as most other sciences. Geology may tell whether the earth was moulded at one great cast, or whether its hills and vales were caused by its convulsive throes or its volcanic action. Astronomy may peer deep into the starry vault and read the planet-star and its satellites as they whirl through boundless space; but pathology is more profound, its nature requires more mature thought and investigation. Our practice is mostly theoretical, symptomatology being the only portion of our science which may be said to be replete. Much of the teaching and writings of Prof. Saulisbury is contrary to all logical deduction. He has seen animalcula and cryptogamic fungi feeding upon the vitals of their victim, and written long and elaborate accounts, describing their appearance and nature, while other observers who may justly claim to be his equal in the use of the microscope, assert that he has mistaken the blood-corpuscles and other normal constituents of the blood for infusoria. But, even if this serious error had been made, Prof. Saulisbury's writings would still be of value, for they have shaken other theories to their very centre, and aroused a discussion which has been participated in by some of the most able and talented members of the profession; yet to-day the great mass of investigators is wafted along by humoralism, nervous phenomena always being secondary with them. Physiological observation has taught us that irritation of the base of a nerve will produce functional and organic changes of the parts to which it is distributed, and that irritation or disease of those parts may produce structural changes of the base of a nerve. This, then, must be due to transmitted impression, as the body of the nerve lies between the two extremities.

Now, cannot we account for many of our low congestive fevers on the same basis? An impression is made upon, perhaps, the nerve-centre or base, and is transmitted to the parts to which it is distributed; deranged function ensues, followed, may be, by organic changes. If over-stimulation of a nerve will produce hyper-nutrition of the parts it supplies, why may not peculiar morbid impressions produce their own characteristic lesions? If this is not the case to a great extent, our treatment must be erroneous, as it would be absurd to think that the remedies we generally use are capable of neutralizing the so-called blood-poison; they mostly act upon the nervous system. Say we take rheumatism, the pathology of which of late has been unquestioned: the ancients said it was a peccant humor; modern pathology tells us that humor is lactic acid. Common sense suggests an alkaline treatment, and we drench our patient with Rochelle salts, and still the disease goes on; we test the secretions, find them all alkaline, and still we find as much rheumatism as before. Why is it? We can certainly neutralize every trace of acid in the blood, and, if lactic acid is the sole cause, ought not our patient to get well? Now, suppose we do have some favorable change during the alkaline treatment, is it impossible to attribute it to any thing but neutralization? Cannot the electric influence generated by the chemical action have a beneficial effect upon the nervous influence of the diseased part; or, by its immediate presence, in some way act upon the *materies morbi*, preventing or modifying its action upon the system?

Again, our patients get well just as soon on an entirely different treatment, say the anodyne: we give a dose of opium; it lessens the susceptibility of the nervous system to the morbid cause or impression, and thereby gives the nerves as well as the diseased parts an opportunity to partially regain their normal action. Or the patient may get well as soon on other treatment directed wholly to the nervous system, as colchicum, by which I have seen inflammatory action reduced in one-fifth the time required by the alkalies to produce any observable effect.

Lastly, I am fully convinced that many of our skin-diseases are of nerve-origin. Some of our authorities believe they are of rheumatic origin, but do not know the origin of rheumatism. Accepting the humoral theory, lactic acid must play an important part in their causation; but I apprehend there are few cases that alkalies alone will materially benefit. Arsenic has been the boasted remedy, and that is one of the very best nerve-tonics, and in this way I believe it acts, rather than by producing any peculiar alterative effect on the skin, as has been claimed. Electricity is one of our most potent remedies, and often succeeds better than all others, applied either to the diseased parts or nerve-centres. Phosphorus and tr. ferri chlor. will sometimes act almost like specifics, and so will some of our nerve-tonics. Clinical observation shows their superiority to other modes of treatment. The various ointments and lotions generally used act principally by excluding the air or soothing the irritated nerve-ramifications.

II. DISEASES OF THE BRAIN AND NERVOUS SYSTEM.

The Hygienic Treatment of Nervous Diseases.

From a lecture by Dr. E. C. Seguin, printed in the New York *Medical Record*, July 1, 1874, we make the following extract:—

The cases of nervous disease which are, strictly speaking, active, due to hyperæmia, or over-action of the nervous centres, I regard as being exceedingly rare. Consequently, I regard the immense majority of cases as requiring a supporting diet and such hygiene as shall tend to improve nutrition.

There are many points to be considered in this connection.

In the first place, many paralytics suffer from slow digestion and constipation. The diet of such patients should consist of such articles of food as leave little detritus, as meat, fish, eggs, milk, and fats. Vegetables and starchy or sweet articles should be allowed sparingly.

In the second place, the bladder in many cases (spinal palsies) requires to be emptied by means of the catheter. In such cases you cannot exercise too much gentleness and care in introducing the instrument, for fear of setting up cystitis, or of aggravating one already present.

Thirdly: In many spinal cases there is immensely exaggerated reflex activity of the spinal centres; spinal epilepsy is set up by the contact of the bed-clothes, your hand, etc., with the palsied limbs; and an over-loaded bowel brings about attacks which seem spontaneous. By strict orders to the nurse and by the help of mechanical contrivance you can reduce these spasms to a minimum. If one occur, recollect that you can stop it by forcibly flexing one or both great toes, as indicated by Brown-Séquard.

Fourthly: I would ask you always to bear in mind that bed-ridden paralytics are peculiarly liable to fatal attacks of bronchitis, broncho-pneumonia, and pneumonic phthisis. Remembering this, you will give directions to obviate all that which might expose your patients to such chest complications.

Fifthly: Inasmuch as bed-sores are likely to occur among the complications of nervous diseases, a few words may be added to what has already been said concerning their prophylaxis.

It is important to make every piece of clothing beneath the patient smooth. Consequently, a pretty hard mattress or water-bed is the best for them to lie upon. Special care is to be taken that the under-sheet does not get wrinkled and drawn into folds; its ends may be fastened down by tapes. The shirt worn by the patient should be kept smooth under him, and perfect cleanliness must be enforced. Special attention to these apparently small matters will in most cases be sufficient to prevent the formation of eschars.

In case a bed-sore has formed, the best course to pursue is to clean away all necrosed skin and connective tissue (tow-like shreds) by means of forceps and scissors, and then to use the ice and poultice treatment as above detailed. When healthy granulations spring up, ice poultices are still useful once or twice a day, to be succeeded by ointments, or adhesive plaster strapping.

Sixthly: In the matter of coffee, alcoholic drinks and tobacco. You will hear physicians asking their patients to give up the use of these articles, simply because they have a disease of the nervous system. I am afraid, gentlemen, that this is very illogical. For my own part I do not proscribe these luxuries unless there is evidence that their use has had something to do with the development of the morbid state. Usually I do not at all interfere with the use of coffee, and ask that a less quantity of alcoholic drinks and tobacco should be used. The worry and nervousness consequent upon the giving up of an established habit is worse for the patient, in my opinion, than the moderate use of the above-named articles.

Let me close this rather fragmentary lecture, by calling your attention to something which is not wholly extra-medical. I allude to the care of your patients' spirits—their emotions and fancies, if you will. Never let *alarm* be one of your medicaments. If necessary, in order to bring about the reform of bad habits, lay the picture of consequences before your patient truthfully, but not in the language of exaggeration. Even in hysterical cases you need not be so frank as to hurt your patient's feelings; it will often do if her relatives know precisely what you think of the value of the symptoms. In cases of mental disorder, pray do not forget that even very maniacal or melancholic patients attend to and remember all your words and actions, and will treasure any kind and careful behavior of yours, as well as bitterly recall any unkind or hasty phrases and acts. As a general therapeutic rule, I would have you be as anxious to avoid wounding the sensibilities of your poor or wealthy patients as of injuring their tissues.

Oxygen Gas in Heat-stroke.

Dr. C. G. Hill, of Maryland, writes to the Virginia *Medical Monthly*, November, 1874:—

My experience is, that in *sun-stroke* the tendency is generally towards recovery, especially if the patient be removed to a cool place and ice freely applied to the head and chest; but in genuine *heat-stroke,* the most persevering efforts and the most approved treatment are too often sadly unavailing. During the summer of 1870, while occupying the position of Resident Physician of the Washington University Hospital, of Baltimore, I had the opportunity of almost daily witnessing cases of this kind. And it was lamentable to see that, notwithstanding prompt and energetic treatment, the mortality of those who reached a state of coma was immense. And under these circumstances I felt justified in making any experiments that gave promise of an improvement in the treatment usually adopted in these cases.

The time has not arrived when we can explain to our entire satisfaction how that *peculiar modification* of the blood, incident to this disease, is brought about. But we invariably find it associated with the following concomitant circumstances: A system already depressed by some previous cause, such as intemperance, excessive use of cold water, etc.; and an atmosphere *greatly rarefied* by extreme and prolonged heat, and surcharged with all those foul and deleterious gases that emanate from the docks and gutters of a large city (for cases of genuine heat-stroke in the country have been so rarely and imperfectly noted that there are good reasons for doubting them altogether).

Believing that this *impure and attenuated atmosphere* was the immediate cause of the disease, by introducing into the system *materies morbi* from without, and by being incapable of properly oxygenating the blood, thereby allowing the accumulation of the effete matters, resulting from the natural tissue metamorphosis of the body, I determined to test the virtues of the inhalation of oxygen gas in the next case that presented itself. The gas was accordingly prepared and held in readiness until the following case allowed an opportunity of giving it a trial:

Friday, July 25th, 1870.—M. X., æt. 40, wood-sawyer by occupation, while returning from his work about 6 o'clock p. m., was overcome by the heat on the corner of Calvert and Lombard streets. He was taken immediately to the middle district station-house; and, being summoned, I reached there about twenty minutes after six. Found him in a comatose condition, grinding his teeth, and vomiting a thick, frothy substance, tinged with bile, and of an unpleasant odor. Pulse 104, weak and fluttering; body and head hot; pupils contracted and insensible to light. Ordered ice to the head and mustard to the epigastrium and the feet. Sent at once for the oxygen, which arrived in about ten minutes. Up to this time there had been no perceptible change in any respect. Applied the oxygen loosely to the nostrils, so as to allow a free admixture of atmospheric air. In a short time the pulse began to grow stronger, and soon sank to 90 beats per minute. Patient at this time showed signs of returning sensibility by moving the hands as though the mustard was felt. The pupils became less contracted and more sensitive to light. The pulse had reached as low as 80, when the first supply of oxygen being exhausted, I resorted to a second, which was at hand. In the short delay which the changing from the one to the other occasioned, the pulse grew somewhat weaker, and rose to 88, but soon returned to its former condition on the re-application of the oxygen. The improvement of the patient was now evident to all. The frothy substance ejected from the stomach had given place to a thin watery fluid, and the patient was able to reply when spoken to. The oxygen was then gradually withdrawn, and at about eight o'clock he was able to walk unassisted to a hack in front of the door, and be conveyed to his home.

Having removed into the country shortly after this occurrence, I had no opportunity of extending this treatment, and I publish it now in the hope that some one may see fit to give it further trial, as I feel assured that this potent agent will be found a highly important addition to the treatment of heat-stroke.

Chronic Vaso-Motor Hyper-Irritation.

The following article from the New York *Medical Journal*, October, 1874, is by ALLAN McLANE HAMILTON, M. D., of New York:—

My attention was called a year or more ago to a condition which at that time seemed to merit the distinction of being considered as a separate disease, but, as I had not then heard of other cases, and had not met them myself, I thought it to be only a peculiar symptom of some undiscoverable central disease. Having seen a case since, however, and heard of another from a member of my class, I have deemed it of sufficient importance to present a description of the condition, which I now think may be considered as a distinct nervous affection of itself, having a definite character, with uniform symptoms.

The affection I allude to is a temporary spasm of the muscular coats of the small vessels of some limited spot, the site being usually a part of the hand. It is indicated by loss of normal color and decrease in temperature. The peculiarity is the limited blanching and coldness coming on without assignable cause, lasting a few hours or a few days, and finally subsiding, to reappear perhaps after an uncertain interval. Of the two patients I saw, the right hand of one and the left of the other were affected.

In these cases, for the space of a week there was a contraction of the cutaneous blood-vessels of the skin of the two outer fingers of the left hand, extending down to the wrist, and clearly dividing them from the normal skin by a sharp contrast of color. In the other case the color would disappear for a few hours at a time, these attacks coming on every few weeks. There was no loss of motion or sensation in the affected fingers. Appreciation of weight was perfect, and tactile sensibility was not impaired in the least. The æsthesiometer did not indicate any loss of sensation, the patient being able to distinguish the points at a normal distance. The galvanic current effected a disappearance of the condition in a short time. As to the cause of the disease, I am in the dark, for no history that could possibly account for it could be given.

There is a well-known physiological fact, viz., that a section of a sympathetic fibre will be followed by dilatation of the vessel it supplies, attended by a congestion of the part; and that irritation of the same nerve-fibre will be succeeded by a contraction of the vessels.

According to Virchow and other writers, there are two sets of nerves concerned in circulation—a cerebro-spinal, or *moderator*, and a sympathetic vaso-motor; the former in a normal state affecting dilatation, and the sympathetic causing contraction, so that when the influence of one or the other is destroyed, the one left acts alone and performs its special functions with increased vigor.

As none of the peculiar motor or sensor functions belonging to the cerebro-spinal system were impaired or lost, I am of opinion that the integrity of the peripheral branches of this system was intact. The process of bleaching was not under control of the will, as in Dr. Clymer's case, which I shall presently allude to, but was involuntary. I am therefore left to suppose that the vaso-motor nerves were affected, and that there was a hyper-irritation starting either from some ganglion or dependent upon a localized stimulation of the sympathetic fibres going to the blood-vessels of the part.

Dr. Meredith Clymer, in the *Medical Record*, vol. v., p. 148, details a case coming under his notice where the patient, by the exercise of his will, could produce at pleasure a blanching of the entire cutaneous surface, erection of the hairs, *cutis anserina*, with loss of heat. After the effort he felt a peculiarly disagreeable sensation at the præcordial region, akin to the sensation produced by fear, and an indescribable sensation, or aura, starting from the upper cervical region, and traveling downward.

I have seen a condition the exact reverse of that I have just described. The patient was choretic. The right hand became a dusky purple, and staid in this condition for two or more weeks.

In conclusion, I would recapitulate the several points of interest in these cases:

1. A local blanching lasting two or three weeks, or coming on in intervals of several weeks, and lasting a few hours each time.
2. Sensation and motion unimpaired.
3. Temperature of affected members lowered.
4. Part affected, the hand.
5. The affection due to hyper-irritation of local sympathetic vaso-motor filaments.
6. Galvanism effects a change in the calibre of the vessels, and eventually a cure.

On Lateral Amyotrophic Sclerosis.

The *Irish Hospital Gazette* translates from the *Gazette Médicale* an article by Dr. **Lepine** on this disease:—

It has been shown that both from an anatomical and a pathological point of view, each of the columns of the spinal cord, the posterior and the lateral, might be divided into two fasciculi. Attention was also recalled to the fact that M. Pierret had seen in certain cases of locomotor ataxy that the lesion was exactly limited to the external fasciculus (*radiculaire*) of the posterior columns; and this, according to him, is the sole essential lesion of the affection known under the name of locomotor ataxy, tabes dorsalis, etc. Finally, it was also announced, in consequence of a communication made by M. Charcot to the Société de Biologie, that in the posterior fasciculus of the lateral column, a fasciculus, the individuality of which is proved by embryogeny, are localized certain systematic scleroses, which may be accompanied by an atrophy more or less general of the muscular system.

The discovery of the existence of lesions of the anterior grey horns in many cases of progressive muscular atrophy had been made for some time, when M. Charcot, arguing from these autopsies by a bold but legitimate induction, enunciated the idea, in his course of lectures delivered in 1868, that an irritation, springing from a group of cells of the anterior horns, may produce atrophy with or without degeneration of the muscles which are dependent upon these cells. Since then he has several times further developed and insisted upon this idea by fresh proofs. According to him, a lesion rapidly destroying these cells causes in the child, and even in the adult, a paralysis with atrophy, rapidly developed. A chronic irritative process, propagating itself irregularly into the anterior horns, attacking here a cell, and sparing the neighboring one, declares itself by producing the symptoms of progressive muscular atrophy. When the cells of the nucleus of the origins of the facial, hypo-glossal, and of the spinal nerves, are themselves affected at the same time as are those of the brachial enlargement, the symptoms of glosso-labial paralysis will be superadded to the ordinary disturbances of muscular atrophy, prematurely leading on to a fatal termination.[*]

M. Charcot inclines to think that in infantile paralysis, in the spinal paralysis of the adult, and in typical progressive muscular atrophy, such as described by MM. Duchenne, Aran, Cruveilhier, etc., the lesion of the nerve cells is *primary*. On examination of fine sections of the medulla, we find in the neuroglia, around the atrophied cells, or in their place, if they have completely disappeared, traces of an inflammatory process. According to M. Charcot, these lesions are consecutive to those of the nerve cells, otherwise we could not understand their exact localization in the *area* of certain cellular groups. But in addition to these *primary* lesions of the nerve cells, M. Charcot recognizes others which are evidently secondary. In hypertrophic spinal pachymeningitis,[†] which former authors called hypertrophy of the spinal marrow, the inflammatory lesion extended from the meninges to the spinal marrow itself, and engaged the grey substance. Sclerosis of the posterior columns of the cord, and notably of the radical fasciculi, may propagate itself to the anterior grey substance, by means of certain anatomical connexions.[‡] In certain cases of central myelitis, and of tumor of the cord, the inflammation may reach the anterior horns. Lastly, patches of sclerosis may occupy these portions. In all these cases, when the cells of the anterior horns are destroyed, there is an atrophy of the muscles which are under the control of the group of nerve cells which have disappeared. Accordingly, as the lesion of the nerve cells may be primary or secondary, the effect on the muscular system is the same. Likewise, if the different medullary lesions which we have just enumerated leave intact the cells of the anterior horns, there is no muscular atrophy. At least, it may be said that (deducting, naturally, those cases of muscular atrophy of peripheric origin, and also those which may be caused by intra-medullary lesions of the anterior roots), there does not actually exist in science a single reliable case proving muscular atrophy to have supervened the result of a spinal lesion, where these cells have preserved their integrity.

To resume: on the one hand lesions of the cells of the anterior horns cause muscular atrophy; on the other it is not proved that the latter may be produced by medullary lesions leaving the cells sound. Such is the actual state of science since the publication of the investigations of M. Charcot.

It was previously stated, however, that sclerosis of the posterior fasciculi of the lateral columns might sometimes be accompanied by general muscular atrophy. This lesion would be exceptional; it would have a privilege which lesions of the horns appear alone to possess. This, however, is not the case. When sclerosis of the posterior fasciculus of the lateral column is accompanied by atrophy, it is because it has extended to the anterior horn. The atrophy advances by the same mechanism as we have described in connection with the extension of the sclerosis of the posterior radical fasciculus, and because there are normal communications between the grey substance and these fasciculi, a kind of open way for the propagation of the inflammatory process. In both cases this extension is not fatal; in both, when it exists, it produces the same effects on the muscles. As regards symptomatology, a marked feature distinguishes lateral amyotrophic sclerosis from true muscular atrophy (from primary atrophy of the cells), viz., the rapidity of its evolution. The fatal termination occurs in less than three years, and even much sooner, while patients suffering from veritable locomotor ataxy may live from ten to twenty years.

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[*] Charcot. *Archiv. de Physiologie*, 1870. Sur un cas de paralysie glosso-labiée suivi d'autopsie.

[†] Thesis of M. Joffroy, 1873.

[‡] V. Pierret. *Archives de Physiologie*, III. 1870: p. 599.

In this period, relatively short, the four limbs are successively attacked. In the upper extremities the atrophy is always much more marked than in the lower (M. Charcot remarks as regards this, that alterations of the grey substance are always more advanced in the cervical region); in the lower extremities it is more a simple paralysis than an atrophic paralysis. In all the cases hitherto observed by M. Charcot the disease has reached to the bulb, and it is the paralysis of the bulbar nerves which has caused death. This extension in the protopathic atrophy only occurs rarely (in about $\frac{1}{11}$th of the cases), according to M. Duchenne's statistics. M. Charcot has not observed hereditary influence in his cases: in a third of the cases the patients ascribed the origin of their disease to exposure to cold and damp.

In the progressive muscular atrophy of classical descriptions the motor impotency is associated, in great degree, with the atrophy of the muscular masses; this is one of those facts most insisted upon by M. Duchenne. In lateral sclerosis, on the contrary, the paralysis is the predominant phenomenon; in the lower extremities, as we have already noticed, the atrophy is at the minimum. In the first of these maladies there does not occur any stiffness of the limbs, nor is there usually any interference with sensibility. In the second, the limbs are, at a certain stage of the affection, frequently attacked with permanent rigidity; further, they are tolerably commonly the seat—1. Of spontaneous pains, of numbness, or of sensations of formication; 2. Of pains elicited by pressure upon traction of the muscular masses.

But it is useless to pursue the parallel. The individuality of the form recently described by M. Charcot will be sufficiently obvious from a simple detail of the symptoms.

In the majority of cases, the malady commences in one of the upper extremities, without fever; sometimes without appreciable malaise even, or at most in succession to slight feelings of numbness and formication; it soon extends to the opposite limb. The enfeeblement of motility is the first positive symptom; but when it first seriously attracts the attention of the patient, it is already often accompanied with a certain degree of wasting. This paresis and wasting presents the common character of not being, even at this early period, circumscribed to a limited region of the limb—to the muscles of the thenar eminence, for example, as we see in the classic muscular atrophy; they extend, so to say, uniformly from the root to the extremity of the limb; we have not then to do here with an individual atrophy of a muscle, but rather with a paralysis of the limb, accompanied, or rather followed, by a wasting, more or less rapid in occurrence, and more or less generalized.

Besides this, the muscles in process of atrophy are agitated by fibrillar movements often very acutely developed; and, as in the classic atrophy, they preserve—so long, that is, as the muscular affection has not reached the last stage—their faradic contractility.

Soon deformities commence to appear, with peculiar attitudes of different segments of the limbs. These in part beyond doubt depend upon the predominance of the tonic action of those muscles least profoundly affected. But, according to M. Charcot, these deviations must be recognized as having their chief cause in a spasmodic condition of certain muscular groups, a veritable contracture which renders a number of articulations rigid. If the patient attempts to abduct the arm from the side, the muscles of the shoulder give a vigorous resistance; or if he tries to place the forearm in a state of extension and supination, he is arrested by an obstacle not to be overcome without provoking considerable pain. Similarly it is impossible to extend the thumb and the fingers which are crooked in the palm of the hand.

If, in spite of the paresis and rigidity, the patient still preserves the power of performing certain movements, if, for instance, he can raise the arm, the limb becomes the seat of a tremulous motion, which calls to mind that observed in the *sclérose en plaques*. This phenomenon, according to the previous labors of M. Charcot, appertains to sclerosis of the lateral columns; and this, no matter what may be the cause of the sclerosis, whether primary as in this case, and as is also the case in *sclérose en plaques*, &c., or whether dependent for its source upon some cerebral lesion.

When the disease arrives at an advanced stage, the emaciation sometimes attains to an extreme degree; the spasmodic rigidity is then naturally less pronounced, but the vicious attitude of the limb remains. In certain exceptional cases, this emaciation is masked by a "lipomatose luxuriante," as the Germans call it, which gives a deceptive appearance of relief to muscles which are really extremely atrophic.

Let us now examine how the atrophy comports itself in the lower extremeties. It is generally some months after the invasion of disease in the upper limbs that the inferior extremeties take on a paresis preceded by numbness and formication. Here, the paresis does not necessarily entail muscular atrophy, and the muscles may retain to the very end a plumpness and consistence contrasting singularly with the condition of the superior extremeties; it is accompanied, however, as in this latter case, with the same spasmodic rigidity. At first it is simply a temporary stiffness of the members in the extended state; this stiffness becomes exaggerated when the patient, supported by a couple of assistants, attempts to walk. This, which is at first merely a transitory symptom, may eventually become permanent; the contraction of the muscles may persist without intermission, affecting the flexors as well as the extensors, although predominating in the latter. If by manual force we replace the foot—which will be found in the attitude characteristic of talipes equinus—we provoke a more or less durable tremor of the entire limb. We do not, however, always find this contracture carried to such a degree; as in the case of the upper extremities, it is sometimes but slightly developed.

A constant phenomenon consists of the absolute integrity of the bladder and rectum. At no period of the affection are these organs paralyzed; neither do we find bed sores to become developed on the points of pressure. In fact, we now know that these various phenomena are wanting when the morbid change of the grey substance is strictly confined to the anterior cornua.

In all the cases up to this time observed, the disease we are now discussing has terminated in invading the nuclei of the bulb; that is to say, have supervened the well-known symptoms of glosso-labio-laryngeal paralysis:—paralysis of the tongue with atrophy, of the veil of the palate, of the orbicular muscle of the lips, and finally, grave interferences with respiration and with the circulation which entail the death of the patient, enfeebled by insufficient alimentation.

Lateral amyotrophic sclerosis does not seem to be a very rare disease; but the number of autopsies sufficiently complete to serve as a basis for the elucidation of its history is as yet very small. M. Charcot, outside his own personal records and those published by his pupils, has laid under contribution for his description certain observations which he has borrowed from the medical literature of late years, and which were sufficiently rich in precise details, clinical and anatomical, to allow him to offer a retrospective diagnosis. These are:—1st. Cases 1 and 2 of the memoir of M. Duménil (of Rouen), (*Gaz. Hebd.*, 1867); 2d. Three cases of M. Leyden published under the name of "bulbar paralysis;" (1) a case of M. O. Barth (2) (being one which presented the peculiarity above noticed, viz., that the atrophy was masked by the excessive development of fat); a case by Dr. Hun, (3) one by Dr. Wilks, (4) and finally, one by Sir W. Gull. The examination of the spinal cord was made by Mr. Lockart Clarke.(5)

It cannot be contended that these observations are quite perfect; but in them all M. Charcot has been able to discover, just as in his own cases, certain common symptomatic traits, and the same lesion of the antero-lateral parts of the spinal cord already indicated.(6)

To resume, in the actual state of science, it would appear that progressive muscular atrophy must not be looked upon as a species, but rather as a genus of disease comprehending several species. In one of these, that corresponding to the classical description, the muscular atrophy is dependent upon some lesion of the nerve cells which, for reasons given in a preceding article, M. Charcot considers to be primary; in the species actually under discussion, the lesion of the cells, which induces the muscular atrophy, is consecutive to a sclerosis of the lateral columns; just as it can similarly be, in another species, consecutive to a sclerosis of the radical fasciculi; here the sclerosis of the white columns is the primary lesion.(7)

This conclusion is drawn not only from pathological anatomy, but from reasons borrowed from clinical observation; the paresis, with patients in this case, precedes the atrophy, just as the shooting pains and inco-ordination, with ataxic patients, precedes the incidental atrophy which may occur. This simple fact of considering the succession of symptoms is sufficient to demonstrate the error of Friedrich (Heidelberg), who, in his very elaborate work upon muscular atrophy, published this year, attempts to establish that the affection is always the result of a *primary myositis.* There is nothing of course, *a priori* impossible in the extension of an inflammatory process from the muscles to the cord; but, without even insisting upon the fact that the development of *apparent* lesions in the cord in succession to such a process is nowhere proved, we will be content with remarking that, according to Friedrich's hypothesis, the grey substance will be invaded before the white columns, since there exists no direct connection between the anterior nerve roots and these columns. Now, clinical observation, as we have above observed, proves the contrary. Further insistance upon the point is unnecessary.

The Relation of Nerve Action to Inflammation.

In the *Chicago Journal of Nervous and Mental Disease*, October, 1874, is a lecture by Dr. J. S. JEWELL, from which we extract as follows:—

Thus I have endeavored to answer the question I raised when speaking of active congestion, viz.: What share in the process the nervous system has. It has been found impossible to explain the case, so far as the nervous system is concerned, without going outside of the vaso-motor nervous system proper. We have been obliged to call into the account the cerebro-spinal nervous system, and especially the sensory nerves of the same, with a possibility that the ganglia on the sensory roots of all the nerves had in some way much to do, as well as the cord and brain, in inducing trophic changes at the peripheral terminations of nerves.

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(1) *Arch. für Pschiatrie*, B. ii. (2) *Arch. der Heilkunde.* 1871. (3) *Amer. Jour. of Insanity.* 1871.
(4) *Guy's Hosp. Rep.*, Vol. XV. (5) *Med.-Chir. Trans.*, Vol. LVI.

(6) At the moment of writing this we read in the last number of Virchow's *Archives* (B. LXI.) of a new case, very characteristic of lateral amyotrophic sclerosis. The author, M. Maier (of Freibourg), designates it under the title of "progressive bulbar paralysis." Both in an anatomico-pathological and in a symptomatological point of view, we must look upon this case as an extremely regular type of the affection.

(7) Pierret:—"Sur les altérations de la substance grise dans l'ataxie locom., considérées dans leur rapports avec l'atrophie musculaire qui complique quelquefois cette affection."—*Arch. de Phys.* 1870: p. 599.

What I have said may serve to show that it would not be possible to discuss in a satisfactory manner diseases of the central nervous system, without first of all considering the vaso-motor nervous system.

Before closing, it may not be useless to sum up the results we seem to have reached.

1. The vaso-motor nervous system has important anatomical relations to the cerebro-spinal nervous system, the fibres of connection passing both ways, to and from the spinal cord. The vaso-motor nervous system is subordinate in rank, and in a certain way dependent on, the cerebro-spinal, but has a sphere of its own, which it is capable of filling even when cut off from the spinal cord.

2. There are, in all probability, vaso-motor centres in the spinal cord and medulla oblongata, and possibly in the brain. These centres are connected by communicating fibres with the ganglia of the sympathetic, the action of which they probably regulate.

The same centres in the cord are probably in close relation with the motor and sensory tracts belonging to the cord proper, so that impressions sent into the cord along the spinal nerves proper, may be, under certain circumstances, reflected out from the cord, along vaso-motor nerves, in such was as to affect the circulation in remote parts of the body.

3. That corresponding to the double nerve supply of the heart, we probably have the same or a similar nervous supply for the small muscular vessels, one set of nerves leading, in a way already explained, to a contraction, and the other to an enlargement of the small muscular vessels.

4. That in explaining active congestions of the kind already described, we must take into the account the state and influence of the vaso-motor nervous system not only, but of the cerebro-spinal as well.

5. That active congestion includes as its prime element irritative tissue change, and that this irritative change may be induced in a part through the channel of its cerebro-spinal nerves, especially of the sensory class, which action of the nerves depends on irritative or inflammatory processes, set up, either in the course of the nerve trunks in question, or far more likely, of the same kind of morbid state in the nerve centres, with which the nervous trunks are related; and that in the way already described, most idiopathic active congestions probably arise.

Treatment of Incipient Insanity.

From a report of Dr. J. P. Gray, quoted in the American *Journal of Insanity*, July, 1874, we make the following extract:—

In many, the more remote causes continue as exciting or depressing factors acting on the brain, and must be arrested or removed by suitable remedies, as an antecedent to mental restoration, the morbid state of the brain then often subsiding. This is particularly the case where active phthisis, uterine diseases and disordered menstruation are the efficient causation. Here mania or melancholia may arise from disturbance of the circulation within the cranium, and from ill-nourished nervous centers and defective assimilation. In many, the conditions of ill-health have long preceded the insanity, and gradually lowered the tone of the entire organism, the brain and spinal cord included. These are feeble, broken down people, and some slight final cause, as a severe cold on the lungs, overwork and anxiety in the care of the sick, loss of sleep, or grief and loss of sleep, domestic troubles or financial embarrassments, causing undue activity of the brain, nervous exhaustion follows, the action of the heart is disturbed, nutrition interfered with, and we have insanity as the final catastrophe. At this point an appreciation of their condition, absolute rest and quiet, and forced nutrition, (abundant good nutritious food taken as a mater of duty when there is no appetite,) and suitable sedatives would, undoubtedly, in many cases avert further trouble. But too often all these are neglected, and diversion, by constantly occupying the attention, journeys, and other exhaustive circumstances, are substituted instead. There is often present in cases of long-standing nervous prostration and defective or feeble innervation, a scrofulous or tuberculous diathesis, which under the general constitutional depression, aggravated by some slight cause, awakens into activity, and we find the lungs giving way under a gradual process of degeneration. In such cases the general appearance indicates tuberculous disease, but examination does not reveal the usual physical signs, and there is little or no cough, no expectoration or pain.

"The following formulæ we have used, for some years, with benefit in such cases as well as in other cases, of prostration, when there is not even a tuberculous threatening:

℞.	Olei Morrhuæ,		℥viij.
	Vit. Ovi.,		No ij.
	Acid Phos. Dil.,		ʒij.
	Spts. Frumenti. vel., Vini Xerici	q. s. ut ft,	Oj.,

Or:

℞.	Olei Morrhuæ,		℥viij.
	Vit. Ovi,		No. ij.
	Syr. Lacto-phos. Calcis,		ʒij.
	Tr. Cinchonæ vel., Tr. Gentiani,	q. s. ut ft.,	Oj.

Make an emulsion. Dose, a tablespoonful after each meal.

In cases where such a remedy is indicated by the condition of the lungs, five drops of dilute Hydrocyanic Acid may be given with each dose. Where there is torpor of the bowels, add to either emulsion two drachms of the tincture of Nux Vomica, and in cases of constitutional syphilis, from five to twenty grains of Iodide of Potassium may be given with each dose.

If the Cod-liver Oil can not well be borne, we employ this prescription:

℞.	Glycerinæ,	℥v.
	Acid. Phos. Dil.,	ʒiij.
	Vini Xerici q. s. ut ft.,	Oj.

in the same dose as the emulsions.

To this we sometimes add Wine of Pepsine and Tincture of Nux Vomica.

In cases where headache is a prominent symptom, we have derived benefit from this:

℞.	Glycerinæ,	℥iv.
	Ext. Ergot. Fl.,	℥iss.
	Syr. Lacto-phos. Calcis,	℥iv.
	Vini. Pepsinæ,	ʒivss.

Dose: a tablespoonful after meals, in water.

In many instances we use Cod-liver Oil with Ale or Whisky, or, again, Glycerine with Whisky. We also employ largely all the bitter tonics, as Cinchona, Gentian, Colombo, either alone or in combination with Iron.

Another excellent tonic is presented in the following formula:

℞.	Acid. Phos. Dil.,	℥ij.
	Syr. Lacto-phos. Calcis,	℥vij.
	Elix. Calisayæ,	℥vij.

and is given in tablespoonful doses after each meal, in water.

In anæmic women with profuse hæmorrhagic menstruation, we have found benefit from the administration of 20 grains of Gallic Acid, from 20 to 40 drops of fluid extract of Ergot, one drachm of Glycerine and 3 ounces of water, three times a day during the flow. Usually improvement takes place in the mental condition with the improved nutrition and assimilation. Along with these remedies we also find it necessary to use sedatives and hypnotics, as Chloral, Hyoscyamus, Conium, Morphia, Lupulin, Cannabis Indica, both alone and in combination. Chloral alone, is used ordinarily in doses from 20 to 40 grains, sometimes, however, 60 grains are required, and in combination, 20 to 30 grains with one or two drachms of Tr. of Hyoscyamus. When there is much muscular restlessness, 20 to 60 drops of fluid extract of Conium are given at a dose. And in some of these cases it is advisable to give Conium through the day and Chloral and Hyoscyamus at night.

It is a well established fact that purgatives are not ordinarily indicated in cases of insanity, but that the condition of constipation is best met and overcome by laxatives. We use the fluid extract of Rhamnus Frangula, as prepared by Dr. E. R. Squibb, of Brooklyn. The usual dose is one drachm given at bedtime. If, however, this is not sufficient, the dose may be repeated as often as four times a day, and its effect may be increased by adding five drops of the Tincture of Nux Vomica to each dose. We have used this remedy for some ten years, and consider it among the most valuable laxatives. It acts as a stomachic and tonic and does not lose its effect or require to be increased in quantity from protracted use.

On Hysterical Symptoms.

The New York *Medical Journal*, August, 1874, states that at a meeting of the Neurological Society, Dr. E. C. SEGUIN read a paper on "Hysterical Symptoms in Organic Diseases of the Nervous System." The first part of the paper was devoted to an enumeration of the symptoms which are observed in typical hysteria. The second part of the essay was occupied by the relation of five cases of organic disease of the spinal cord, in which distinct hysterical symptoms (convulsive attacks, undue emotion, etc.) had been prominent. The doctor considered that the occurrence of the hysterical symptoms in these cases was due to a mere coincidence; and he thought that the cases were valuable chiefly as guides for avoiding errors in diagnosis. The third portion of the paper contained fifteen cases of organic disease of the brain in which hysterical symptoms (emotional disturbances, left anæthesia, globus hystericus) had been observed. He called attention to the remarkable fact that thirteen out of fifteen of these cases were the subject of disease of the right hemisphere, and pointed out the remarkable parallelism between this and the fact that the common hysterical symptoms are upon the left side of the body, *i. e.*, also represent a disorder of the right hemisphere. The doctor expressed his belief that the symptoms in these cases, those with organic disease and those with simple disorder of brain-functions, were produced in the same manner, by the inhibition (arrest) of certain functions of parts of the encephalon by an irritation set up by a lesion of the brain-substance in one case, and by a lesion of some peripheral (distant) organ in the other. In other words, Dr. Seguin, accepted Brown-Séquard's hypothesis of the mode of production of brain-symptoms. At the end of the paper the doctor referred to recent researches by Brown-Séquard, Charcot, and De Fleury, which show that lesions of either hemisphere produce a somewhat different grouping of symptoms.

Right Hemispheric Lesion.	Left Hemispheric Lesion.
More anæsthesia.	Loss of speech (aphasia)
Greater palsy.	Palsy of muscles of articulation.
Palsy of sphincters.	Seldom hysterical symptoms.
Alteration of nutrition, { Œdema. Eschars. Fever. Pulmonary. Congestion.	
Disorders of special sense.	
Hysterical symptoms (Seguin).	

III. BLOOD DISEASES.

The Diarrhœa of Bilious Remittent Fever.

In the Australian *Medical and Surgical Review,* July, 1874, Mr. J. B. Tweeddall, F. R. C. S., says:—

According to the experiments of Hoffman, when the bile was prevented passing into the duodenum, the contents of the small intestines were more fœtid than usual. Dr. Bernard has also shown that the admixture of bile with animal or vegetable matter checks the process of fermentation. When the quality of the bile has been seriously altered by disease, the amount of putrefactive fermentation is increased, as evinced by flatus and fœtid diarrhœa. Bile also increases the action of the secretory glands of the small intestines, and excites the peristaltic motion of the walls of the alimentary canal. As digestion only recurs at intervals in man and the higher animals, so the bile, though continuously secreted, is stored up in the gall bladder till requred for use; the orifice of the ductus communis choledochus is closed by a sphenitic muscle, which dilates on the stimulus of the passage of the chyme into the duodenum. As only a small portion of the bile passes away with the fæcal discharge, a large quantity must necessarily be re-absorbed, but with what effect we are at present ignorant of. Healthy bile, when first secreted, is bright golden yellow in color, with a bitter taste, of an alkaline re-action, and of a specific gravity of 1,018; it mixes freely with oils or fatty matter, forming a saponaceous compound, and contains about 9 to 17 per cent. of solid matter. From the above view of the functions of the liver, we are able to understand how the cerebral symptoms present in malarious fever are induced, and also to account for the flatus and fœtid smell of the fæcal discharges. It also points out that the end and aim of all successful treatment must be to relieve the congestion and altered action of the liver at once, and that these and all other symptoms are dependent on or subordinate to the abnormal state of this organ, and that all astringents or opiates are not only useless but positively injurious.

When once the normal state of the liver has been procured by means of blistering, in a few cases leeching, and the administration of mercurial and saline purgatives, all the dangerous symptoms will gradually disappear, such as the fever, cerebral symptoms, and sympathetic congestion of the kidneys.

Of course, I am treating of the usual symptoms typical of the malarious fever; but it may, and often does, assume a variety of deviations, such as erythema, with bright red spots on the skin; the bronchitic with a hard dry cough and secretion of thick viscid mucus, occasionally inflamed sore throat with enlarged tonsils; but the most fatal variety, especially in children, is meningitis, and the most difficult to cure. After reducing the first inflammation of the liver, nothing appears to give more permanent relief than the cold water bandage over the epigastric region for about two hours night and morning. Once the tongue begins to get clear, and becomes red at the tip and edges, the sulphate of quinine, in moderate doses, appears to exert a specific action in eliminating the malarious poison from the system, and will always do so if the patient is not allowed to sink from physical or nervous exhaustion. Quinine in combination with wine appears to act quicker, and to be more agreeable both to the patient and the stomach than any other mixture. As for the other alkaloids and the barks themselves, they may be occasionally useful; but I do not see the necessity of using an inferior article when we have one we can always depend on. At present we have not much occasion for treating malarious diarrhœa, but probably next spring, or certainly the following autumn, we shall have plenty of opportunities of studying all the different phases and modifications of this lingering disease.

The Causes and Nature of Scurvy.

We learn from the London *Medical Record*, October 7, 1874, that M. VILLEMIN (*Bulletin de l'Académie de Médecine*, no. 32, 1874) has published a communication on scurvy, in which are contained some novel views as to the causes and nature of this affection. These views, like those of MM. Levin, Legroux, and Laboulbène, are based upon observations of the severe epidemic of scurvy which occurred in Paris during the military operations of 1870–71. M. Villemin has also brought to bear on this subject an extensive acquaintance with and the results of a careful comparative study of the many elaborate reports concerning previous epidemics of scurvy in different countries. He holds that most of the views concerning the etiology and essence of the affection cannot stand the test of a strict critical examination, based on the study and comparison of various observed epidemics. He discusses the various supposed causes of scurvy, such as mental depression, abuse of tobacco, fatigue, cold, humidity, defective alimentation, saline agents, etc., and states that the affection is not determined by any of the numerous causes assigned to it in classical works on its etiology, and that the inductions drawn from one epidemic have been opposed by observation of another epidemic. Many facts gathered from the published records of epidemics, both of land and sea scurvy, are given to show that a reduced supply, and even absolute deprivation, of fresh vegetables cannot alone give rise to scorbutic symptoms. M. Villemin next discusses and opposes the views of Dr. Garrod, who bases his opinion as to deficiency of potash-salts in food as a cause of scurvy, upon the propositions that potash exists in much diminished quantity in the food of scorbutic subjects, that antiscorbutic remedies contain a considerable proportion of potash, that the potash of the blood and urine is reduced in quantity or altogether absent, that the subjects of scurvy recover on the addition of potash to their food without the use of fresh vegetables and succulent fruits, and lastly, that the theory which attributes scurvy to a deficiency of potash explains satisfactorily most of the symptoms of the affection. According to Dr. Garrod's own tables, it is shown that potash does not exist in smaller quantities in the food consumed by scorbutic than that used by non-scorbutic persons. Anti-scorbutic remedies contain, it is true, a large proportion of potash, but, as M. Villemin points out, these are always taken in very small quantities, and supply very little of this salt to the economy. One does not consume oranges and lemons as one consumes bread, meat and legumes. Half an ounce of lime-juice does not contain more than half a grain of potash, which is a smaller quantity than is contained in one ounce of salted meat or dry peas. The deficiency of potash in the blood and secretions is regarded by M. Villemin as an effect, and not as the cause of scurvy. In any specimen of blood the quantity of potash is in direct proportion to the quantity of blood-corpuscles. Aglobulism is a very marked system of scurvy, and generally precedes every other manifestation of the affection. When an individual becomes anæmic through loss of blood, cachexia, or poisoning, there is the same relative diminution of potash as in scurvy, which bears the same relation to the diminution of globular elements. In answer to Dr. Garrod's statement that scorbutic patients are cured by the addition of potash to the food, without the help of fresh vegetables and succulent fruits, M. Villemin asserts that the success attributed to the use of potash, as to other methods of medication, is due to the fact that scurvy takes a natural and spontaneous course towards cure when the patient is placed under favorable conditions, and outside the medium in which the affection prevails. Scorbutic patients treated on the expectant plan recover just as soon as those treated by salts of potash or by succulent fruits. Dr. Garrod's theory does not, in M. Villemin's opinion, explain all the symptoms of scurvy. What is attributed to deficiency of potash is the effect of aglobulism. In other affections hæmorrhages are produced, which cannot be regarded as being due to a diminution of this alkali. M. Villemin holds that scurvy is always epidemic or endemic, and never sporadic. Cases of purpura, hæmophilia, and leucæmia, in which hæmorrhagic effusions constitute a common symptom, are often put down to scurvy. The scorbutic affection is a zymotic and contagious one, the primary focus of which is the septentrional regions of Europe. It follows the same laws as the recognized epidemic diseases; and the above-mentioned favorable influences, to which the majority of observers have attributed the power of creating it, are regarded by M. Villemin as accessory, secondary, and contingent circumstances, which by themselves are incapable of determining scorbutic symptoms. He thinks that he is able to demonstrate that it is impossible to concede to these conditions such an importance, and their only part is to assist and favor the activity of a special morbific agent. These conditions are debilitation of the organism by previous maladies and by defective alimentation, overcrowding, cold, humidity, and, in general, all that is comprised under the denomination of unfavorable hygienic influences. In conclusion, M. Villemin endeavors to show that there is a close pathological analogy between scurvy and typhus fever, and holds that these two ought to stand side by side in the family of miasmatic infecto-contagious diseases.

Chronic Rheumatic Arthritis.

Dr. **Moore**, of Dublin, contributes to the July number of the *Medico-Chirurgical Review* a report on "Scandinavian Medicine." In speaking of the *Nordiskt Medicinskt Arkiv.*, he notices a paper on "Arthritis Deformans," by Professor Drachmann, of Copenhagen, which he thus sums up:—

"The author considers the disease chiefly in its clinical and pathogenetic aspects. Five important questions require to be solved; they are—(1) What is arthritis deformans? (2) Its symptoms? (3) Its relations to gout and rheumatism? (4) Its etiology? (5) The means of treating it? He adopts Haggarth's definition: 'The disease is almost exclusively peculiar to the female sex; shows itself without fever; the accompanying swelling of the joints is always attended with swelling of the bones; the integuments are not inflamed, and the muscles appear not to suffer.' The author's experience is based upon observations of twenty-eight cases of the affection, all of which occurred in females. As regards the question of age, four of his patients were first attacked before they were twenty years old, six between the age of twenty and twenty-five, nine between twenty-five and forty, five between forty and fifty, and four later. One-third of the cases were in easy circumstances, including several in the highest ranks of life. The malady most frequently began in the small joints, especially of the hands. Thus, in eighteen instances, the point of origin was the finger, the hip in three, the elbow in one, the knee in two, the foot in one; several joints were simultaneously attacked in three. With regard to the chronicity of the disease, Professor Drachmann found a clinical history of under five years' duration in six instances, of between five and ten years in eight, of from ten to twenty years in six, of from twenty to thirty years in seven, and of more than thirty years in one instance. He tabulates the predisposing or exciting causes of the disease us follows: Long continued over-exertion in twelve cases, cold and draughts in nine, damp dwellings in eight, sedentary life, in conjunction with cold, in three, menstrual disturbance in three, rheumatic fever in two, the grand climacteric in five. He remarks that occasionally the attacked joints, instead of undergoing ankylosis, gradually become so relaxed as to stimulate the condition termed by the Germans schlottergelenke. One remarkable example of this is given: The Countess H———, aged forty-three, had suffered from arthritis deformans since she was eighteen. All the affected joints were so freely movable as to readily undergo subluxation. Böcher's observation as to the diminution of phosphoric acid in the urine, while it was quadrupled in the blood, of a victim to chronic arthritis, led Drachmann to analyze the urine in twenty of his patients, with the result of confirming Böcher's statement. The mean quantity of phosphoric acid excreted per diem in the urine of these twenty patients was 1.194 grammes. Neubauer gives the mean quantity for an adult male as 3.5 grammes, and Dr. G. Harley, for a healthy adult, as about 3.22 grammes (50 grains). Dr. Drachmann, in analyzing the concretions so characteristic of chronic rheumatic arthritis, found their chemical composition to be identical with that of bone, excepting a slight preponderance of lime. He lays stress on this as a point of differential diagnosis from gouty concretions, which so largely consist of urates. As illustrative, however, of the occasional difficulty of diagnosis, he adduces two cases of gout which very closely simulated chronic rheumatic arthritis. To rheumatism, on the contrary, the disease is so intimately related that the author is inclined to believe that it may be regarded as the more serious or malignant expression of the rheumatic diathesis. His experience of the results of treatment is not more favorable than that of the majority of writers on the subject. To colds, draughts, moisture, and over-exhaustion, as injurious elements, he adds absolute rest, and he suggests the warm, dry, and equable climate of Upper Egypt as likely to be of service to the unhappy sufferers from this intractable malady. Alas! how few of them could find the ways and means of carrying the advice into effect."

IV. LOCAL DISEASES.

(a) DISEASES OF THE RESPIRATORY ORGANS.

Treatment of Phthisis.

The *Medical Times and Gazette* of October, 1874, translates a lecture by Dr. GALLARD:—

He cautions his hearers against being led away by two cases related in the *Clinique Médicale* of Trousseau, in proof that the employment of iron is absolutely contra-indicated in phthisis as both hurtful and dangerous. In one of these two cases it was given for neuralgia, and in the other for chlorosis, and in both the patients were rapidly cured of the symptoms for which it was administered, and then speedily carried off by phthisis. These cases occurred at the beginning of Trousseau's career; and the remarkable thing is, that some twenty years afterwards he published them without any corroboration from the vast opportunities he subsequently enjoyed. Galloping consumption is of too frequent occurrence not to have given him plenty of opportunity of observing it more accurately than he did at this early period. However, these two cases seem to have taken such firm possession of him as to lead him into the error ("and his genius, as paradoxical as it was brilliant, has committed and propagated more than one such") of positively prohibiting the use of iron in this disease. What especially confirmed him in this erroneous view was the idea which he entertained also that chlorosis, essentially a nervous disease, is quite different from anæmia, an affection solely characterized by a diminution of blood globules. This distinction is not admitted by the clinical observers, who speak with as great an authority as Trousseau himself, and who, so far from finding iron injurious in the chlorosis that accompanies, often administer it with great advantage while employing it with discrimination.

The form of iron which Dr. Gallard has found most useful is the carbonate, with which, in order to enable it to be better tolerated by the stomach, he associates a little opium. His formula is—carbonate of iron and soft extract of cinchona, of each five grammes; gummy extract of opium, twenty-five centi-grammes; divided into fifty pills. Of these four are taken daily, two at the commencement of each principal meal. But this addition of opium, and the precaution of taking the pills at mealtimes, which succeed so admirably in simple chlorosis, do not always enable iron to be borne by phthisical patients, and in such cases we should follow the advice of Louis, and substitute ferruginous mineral waters, drank at mealtimes. The Orezza water is that which is best supported by those patients, as well as by women whose chlorosis is dependent upon disease of the internal genital organs. Its superiority arises not so much from the quantity of iron it contains, which exceeds that of any other mineral water, as from the large proportion of free carbonic acid and alkaline bases which also enter into its composition. These elements favor digestion and render the absorption of the iron more easy; and so efficacious does Dr. Gallard consider this double action of the carbonic acid and the alkaline bases in facilitating the tolerance and absorption of iron and its compounds, that for his hospital patients, for whom these mineral waters are not procurable, he generally directs seltzer-water to which a little bicarbonate of soda has been added to be given at the same time as the ferruginous preparations. If he insists on the necessity of administering iron at mealtimes, and of associating with it a small quantity of opium, it is because there is no contra-indication more important than the disturbance of the stomach which in so many cases prevents our profiting by its useful action. But if we proceed carefully, commencing with small doses, and especially alternating the ferruginous preparations with bark and arsenic, which are also indicated under the same circumstances, we may avoid exciting these "revolts" of the stomach, which are never met with when ferruginous mineral waters like the Orezza are employed, that contain a sufficient proportion of free carbonic acid.

"Let it be well understood," Dr. Gallard concludes with saying, "that I do not recommend iron as a means of treating phthisis, but entirely as a useful one for diminishing, if not entirely dissipating, the anæmia which accompanies it. Now, this anæmia may have a double origin. First, it may be purely chlorotic. It will be readily understood that a young woman, even born of tuberculous parents, may become chlorotic at puberty under the influence of the same causes that produce the affection in others of her age, and that before the tubercular diathesis has revealed itself in her by any anatomical manifestation in the lungs. It is a young woman like this whom Trousseau will not treat, and whose treatment I undertake with all the precautions indicated above. She is effectually cured, and her tubercular affection is not, notwithstanding what the illustrious clinical professor at the Hotel-Dieu may say, in anywise aggravated by the cure of her chlorosis. Quite the contrary; it is allowable to say, with Louis as our guide, that the careful and moderate employment of ferruginous preparations, associated with other tonics, constitutes one of the essential elements of the best preventive treatment which can be directed against pulmonary phthisis.

A Case of Tuberculosis Treated by Nitrous Oxide.

Dr. C. W. LARISON, of Ringoes, New Jersey, writes to the Cincinnati *Medical News*, November, 1874:—

On the 24th of September, 1872, Mrs. B. H., aged 22, was prostrated by hemorrhage of the lungs. As I was not at liberty then to attend to my pratice, on account of the illness of my brother; Dr. A. B. Larison, Dr. G. H. Larison, of Lambertville saw her for me, and continued to visit her for a number of days. At first she seemed to convalesce and actually began to travel about; but in a short time her appetite began to fail, her cough to increase, and night sweats supervened, together with much emaciation. She was now obliged to keep her bed constantly, and suffered very much from dyspnœa.

Physical exploration revealed that the lady was laboring under Tuberculosis Pulmonalis, and probably of the milliary variety. She had been prostrated with this ailment some two years and six months before, but during this interval had enjoyed tolerably good health. The remedies she was advised to take were quinia, iron, turpentine, syrups of the phosphites and of the phosphates, cod-liver oil, chlorate potass., etc., etc. Counter-irritation was constantly kept up by a liniment made of equal parts of aqua ammonia, tr. capsicum and terebinth. As time passed on the dyspnœa increased, and with it was associated hectic fever. The lady begged to have the doors and windows opened, as it was impossible under any other circumstances that she could endure the extreme heat of her fever. She lay in a room upon the first floor with opposing out-doors which were set wide open, day and night, rain or shine, without fire, until the first week in December.

Seeing the inefficiency of the remedies that I had advised for her, and that she was daily growing worse, and probably was near the end of life, I resolved to give her nitrous oxyd. Accordingly, on the 29th of November, I set up and charged an apparatus having a capacity of five gallons; and after showing her and the nurse how it should be used, I advised her to take two respirations of the gas every hour until the quantity was exhausted, or until I should see her. At the end of about 24 hours I saw her again. She had consumed the gas; said she experienced no change in her feelings as yet, and that it was tiresome to take the gas. Again I charged the apparatus and advised her to take it as before. At the end of 24 hours I again called to see her; she had carried out my directions and stated that the only change, if any, she experienced was a slight improvement in her appetite. The apparatus was again charged, and the lady was directed to use it as before. Again I called to see her at the end of 24 hours. She had taken the gas as directed, stated that she felt some stronger, that her appetite was improving, that she coughed less and slept better, and suffered less from heat and dyspnœa. I advised a continuation of the gas, and on the following day, as I drove toward the house, I was surprised to see both doors and windows closed, a circumstance I had not witnessed in two months. She stated that she felt better; that her appetite, that so long had been poor, was now becoming strong; that she suffered less from heat and dyspnœa, and that she could help herself better.

During this time the eyes improved in their brilliancy; the skin assumed its vigor the muscles performed their functions with greater precision; and the pulse was less frequent and more voluminous. I could detect no increase in the flow of urine, nor any alteration in its properties. It seemed to me that the chief advantage that arose from the use of the gas was of alimentary character—*that it was food for the system.*

I now withdrew all other remedies. The lady continued to convalesce; and in a few days had a stove placed in her room, and again she enjoyed the temperature commonly agreeble to indoor life. Her appetite became voracious, so much so that she sometimes suffered from the quantity she ate. Toward the last of December, she began to walk about her room, and her strength and her general health has been steadily improving till this day. For a long while she did not increase perceptibly in flesh, but since the middle of March she has been gaining in weight. She continues to take the gas at the rate of five gallons per day, and besides it she takes very little medicine. A few incidents have occurred, by the way, to show how much this lady's condition, from time to time, depended upon the use of the gas. When she had been taking the gas for about four weeks, and had for a short time been enjoying a freedom from the distress of fever, and I was not attending her every day, I called to see her and found her in bed, with the window open, fire out of the stove, and her cheeks very much flushed. On inquiry, I learned that on the day I last saw her (three days before) by some mishap they had broken the retort, and in consequence they could not generate the gas, and that she was suffering therefrom. But on returning to the use of the gas she soon became convalescent, and the heat and dyspnœa subsided. The like of this happened more than once, and such has been the result that she dreads being out of it for a single day.

Injection of Pulmonary Cavities.

Dr. W. Pepper concludes an article on this subject in the *American Journal of Medical Science*, October, 1874, thus:—

1. That the idea of opening lung cavities by an incision through the chest-walls is at least as old as Baglivi (probably much older); but that, owing to the very

imperfect character of early clinical records of thoracic diseases, it is difficult to show that such an operation was actually performed before the last century (Barry), or more probably the present one (Hastings and Storke).

2. That the idea of conducting continuous treatment of such cavities by local applications made directly through the chest-walls, has been seriously entertained only within the past few years.

3. That the possibilities of puncturing the lung in a state of health, with delicate needles, without injury, was demonstrated in a few instances by the advocates of acupuncture; and more recently, in the lower animals, by Koch and others.

4. That the operations of Storks and Mosler have shown that lung cavities are very tolerant of external interference, and that they may be cut down upon and opened, canulæ introduced and retained, and various medicinal agents injected in solution or spray (Mosler).

5. That the independent observations reported in full in this paper have shown that the continuous treatment of lung cavities by repeated injections, by means of delicate canulæ, may be conducted without pain, hemorrhage, traumatic irritation, or interference with internal medication and hygienic measures.

6. That the cases which are best adapted for this local treatment are those where a single, superficial and circumscribed non-tuberculous cavity exists; but that even when there is implication of the rest of the lung, or incipient disease of the opposite lung, some benefit may be expected.

7. That the mode in which such local treatment does good, is chiefly by altering the character of morbid action in the walls of the cavity, diminishing the amount of purulent formation, as well as the degree of hectic irritation and the danger of constitutional infection. That a certain amount of rest for the walls of the cavity is secured by the marked relief afforded to the cough. Also that it is indicated, by the progress of the cases above reported, that this treatment may favor the cicatrization and contraction of such cavities.

8. That in the cases in which it has been employed (in which over seventy injections have been given), it has shown itself free from all danger, and of a *certain degree of positive clinical value,* since, during its use, uniform improvement to an exceptional degree has taken place in both the general and local conditions of the patients.

Atropia in Phthisical Sweats.

Of this drug, Dr. A. N. Blodgett writes to the Boston *Medical and Surgical Journal,* October 1, 1874:—

I have prescribed it in eight cases, seven of whom were inmates of the House of the Good Samaritan, and one living in Boston Highlands. Of these, six had phthisis, one tuberculosis (general), and one very marked and obstinate anæmia. The dose in five cases was one one-hundred and twentieth of a grain; in two, one-sixtieth of a grain; and in one, one sixty-fourth of a grain. In six cases, the sweating ceased within forty-eight hours, and in the other two it was very markedly diminished. The medicine was generally continued for one or two nights after the sweating had stopped. In two cases, there has been no return of the perspiration; in the others (all cases of consumption), the sweating returned after a longer or shorter interval, sometimes weeks passing without a night-sweat. In three cases, the pupils were dilated from the dose of one one hundred and twentieth of a grain; in two cases, there was dryness of the throat, and in one patient the atropia caused pain in the abdomen to such a degree that it was omitted. The form used was, in seven cases, the granules of Bullock and Crenshaw; in one case, a solution of sulphate of atropia in equal proportions of syrup of tolu and water. The time of administration was late in the afternoon. In those cases in which its physiological action was expressed, the pupils were always affected before the throat. In no case has any injury followed its use; the undesirable symptoms above mentioned entirely disappeared within a few hours. The strength of the patients has invariably been greater after its use than before, and, with one exception, they have expressed themselves as feeling much better, sleep has been rendered much more refreshing, and the clinical aspects of the patients very much improved.

Rest in Diseases of the Chest.

Dr. E. C. Gehrung, says in the Missouri *Clinical Record*, July, 1874:—

In consequence of several mis-quotations in medical journals from an article of mine published in the *St. Louis Medical and Surgical Journal*, entitled "Rest, its Therapeutic Value and mode of application in certain Diseases of the Chest," I wish to be more explicit as to my mode of applying the bandage, which has given invariable satisfaction in my hands.

A cheap, easily applicable and efficient bandage may be made as follows: Unroll a sheet of raw un-gummed cotton batting, sufficiently long to surround the patient's chest, and the full breadth of the bale. By piercing the same by the arms, it may be applied around the chest like a jacket. This done, take a piece of stout drilling a yard and a half long and about a foot wide for adults—children in proportion—and apply it snugly over the cotton, one and a half times around the chest and pin it as tight as the patient can stand, or the physician can draw it. If it is too loose to give immediate relief from pain, and to enable the patient to expectorate freely and without trouble, take up a fold and pin or sew it. Females sometimes complain of compression of the mammæ, which compression may be relieved by a transverse or crucial incision made in the cloth. To prevent it from slipping down attach a strip of cloth in the way of suspenders.

It is essential to success that the bandage fulfills completely the above indications, because there may be a return of all the former morbid symptoms, if it gets looser from the simple stretching of the cloth, as will be shown by the following case:

June 12th, I was called to a child nine months old. The messenger (the child's mother—a midwife), informed me that the child was dying when she left. I found the patient laboring under all the symptoms of a double pneumonitis. The lungs were filled with mucus to about the mammary region. The bandage was applied immediately, and a sponge bath of tepid water given. A loose expectoration commenced at once, the temperature decreased, the pulse became countable, and the patient's countenance began to clear up. After four hours the former symptoms returned and disappeared again on tightening the bandage. Next morning again relapse and reapplication of the apparatus, when the temperature and pulse were found to be normal; the patient laughed and played and progressed from that time without an outward symptom.

The previous evening I gave an emetic to rid the stomach of the large quantity of swallowed pulmonary mucus.

There is no counter-indication for any additional treatment that may be found necessary.

The Treatment of Pertussis by Inhalation.

Dr. J. Winthrop Spooner, of Hingham, writes to the Boston *Medical and Surgical Journal*, September 5, 1874:—

In the *Journal*, dated April 20, 1871, appeared an article by John J. Caldwell, M. D., of Brooklyn, N. Y., entitled "A New and Successful Treatment of Pertussis." The treatment recommended was the following:—

℞.	Fl. ext. belladonnæ,	♏ v. to x.	
	Potass. bromid.,	℈j.	
	Ammon. bromid.,	℈ij.	
	Aquæ,	℥ij.	M.

Inhale one tablespoonful in the ordinary steam atomizer.

Several successful cases were reported, but since that date I have seen no report of cases treated in that way.

Feeling that we have in this method of treatment a great addition to the therapeutics of a disease often distressing, and sometimes fatal in its results, I have been led to publish a few cases of my own treated in a similar manner. I am in the habit of using a tablespoonful of the above mixture and filling up the glass of the atomizer with water.

Case 1. April 1st. A boy of 14 has had the disease for two weeks. The cough has been severe and the whoop well marked. Vomits after nearly every meal. The next record is April 5th, which is as follows: Patient has been at the office daily and used the atomizer. His cough has been less since the first inhalation, and he has whooped but once. The vomiting has ceased, and there is present but a slight cough, which is not distressing.

Cases 2 and 3 were two children (brother and sister) aged 15 and 12. Well-marked symptoms of whooping cough had been present for two weeks. The same remedy was used for four days, under my supervision, with decided abatement of symptoms. As they were improving, I lent them a hand atomizer, which I afterwards understood they used only for a day or two. The cough lingered for several weeks in both cases, although the whoop was never well marked after the use of the atomizer. In fact, during the latter period, the disease seemed to be a simple bronchitis and nasal catarrh, the result of a series of colds, as the patients were very imprudent.

Case 4. A child of 3 years had a cough, with febrile symptoms for ten days. Yesterday, for the first time, had a decided whoop. Vomited every meal to-day. Face is swollen, eyes congested, and, this morning, lids adhered from excessive secretion. The atomizer was used twice daily. Improvement commenced at once. From that date there was no vomiting, the countenance resumed a natural appearance, and at the close of a week the whoop had ceased, and in less than a fortnight not the least trace of the disease was present.

Cases 5, 6 and 7 were children of one family, aged eight, five and three years respectively. The disease had existed for about two weeks; the symptoms were mild, but sufficient for diagnosis. Treatment was commenced on June 27th. On June 30th I saw them again, and there was a decided improvement. At the close of one week from the commencement of treatment they were well.

Case 8 happened at the same time with the preceding three, and the history was similar.

Case 9. A child of 2 years. I saw her first, July 20th. She whooped for the first time that day. On account of her age, there was difficulty in administering the remedy thoroughly, and perhaps it was on that account that for the first few days there was no perceptible improvement. However, the treatment was continued, and, by the 26th, the symptoms had much abated; and, by the 30th, the patient was well. A little syrup of squills and tolu was used in this case, as a palliative, in the first few days, and this is the only case in which any treatment but the inhalation was used.

Cases 10 and 11 were a little girl of seven and her mother. With the former, the cough and whoop had been present for four weeks, and the mother had coughed for two weeks. The health of these patients was delicate, being predisposed to pulmonary disease, and a sister of the lady had died of phthisis, following pertussis, it was said. In both these cases, although the urgent symptoms were relieved, that is, the vomiting ceased and the cough and whoop became much less frequent under treatment, yet the disease went through its regular course in a mild form.

This, then, is the result of my treatment of pertussis by inhalation. When the disease is at all severe, I use the atomizer twice daily until the urgency of the symptoms is relieved, and then continue it once daily until the cough has entirely disappeared. In some cases, I have somewhat varied the proportion of the ingredients, but have made no essential departure from the formula given.

On Subcutaneous Injection of Chloral in Asthma.

Surgeon-Major N. B. Baillie, Civil Surgeon, Bhaugulpore, says in the Indian *Medical Gazette*:—

It does not seem to have occurred to any one hitherto to employ chloral by subcutaneous injection for the relief of spasmodic asthma, and I am therefore desirous of drawing attention to its value when used in that manner for the relief of this distressing affection.

It has been thus employed recently by Sub-Assistant Surgeon Banerjee, as an improvement on a suggestion of my own to him to use the drug in the ordinary mode: the immediate relief afforded is so striking, that I have no doubt when its use in this form is better known it will be eagerly sought for by those who are liable to attacks of the disease.

The following is a case of this sort in which the effect was very strikingly manifested:

A scantily-clothed woman was carried into the dispensary one cold morning and deposited on the floor, her painful efforts to breathe absorbing all her attention, and rendering her quite unable to give any account of herself; from her friends it was learnt that she had been suffering for some weeks past from more or less difficult breathing, which had culminated in the present most severe attack some twenty hours previously. Solution of chloral containing three grains in twenty minims of water was at once injected subcutaneously at the back of the neck with so much advantage that, ten minutes later, the spasm had entirely ceased, and easy natural respiration had taken its place; the woman expressed her sense of the relief afforded her, and half an hour afterwards walked off to her house with her friends; she was seen again a few days later, having remained quite free from the affection, and as she has not been heard of since, it is probable that the attack has not recurred.

Several other cases of less severity than this have been also treated with equal benefit.

Two other affections occur to me in which it may prove useful, tetanus and puerperal convulsions, in both of which it has been administered with advantage by the mouth; and should an opportunity offer, I shall certainly make a trial of it in hydrophobia.

The Treatment of Nasal Catarrh.

We extract the following from an article on this subject by Dr. E. C. Mann, in the New York *Medical Journal*, October, 1874:—

In view of the predipositioa of nasal catarrh to assume a chronic form, and of the difficulty experienced in eradicating it when it has lasted for some months, it becomes a matter of great interest to those interested in diseases of the throat and respiratory organs. By means of rhinoscopic examinations we are enabled, much more accurately than formerly, to determine the seat and progess of nasal catarrh, and to make local applications to the mucous membrane covering the turbinated bones and septum, which are the parts especially liable to take on ulceration; and it is here also that we find the greatest thickening and hypertrophy of the mucous membrane, resulting sometimes in the production of mucoid polypi. These polypi owe their production to a circumscribed hypertrophy of the mucous membrane, which is especially concentrated upon the glands. The principal mass of the tumor is formed by hypertrophic glands, and it is attached to the mucous membrane by a more or less distinct pedicle.

The treatment of nasal catarrh heretofore has consisted in the application of nitrate of silver, and in the use of astringent injections, together with the employment of various snuffs containing mercurials, tannin, alum, zinc, lead, etc., all of which have signally failed to accomplish radical cures. The first indication evidently in all cases is to build up the patient's system, and, for this purpose, preparations of iron and quinine, with the use of cod-liver oil, combined with iodine in scrofulous cases, will generally suffice, toning up the system and aiding materially the local treatment. The first thing to be accomplished in the local treatment is, to clear out the nasal passages, anteriorly and posteriorly, in order to prepare the nasal mucous membrane for medication; and to this end, Thudicum's nasal douche, or the postererior nasal syringe, may be used with a warm saline solution, containing sixty grains of the chloride of sodium to the pint of water. This operation will have the effect of clearing the nasal cavities of the accumulations of crusts, and will leave the surface of the mucous membrane clear and free for the local applications. After the nasal mucous membrane has been thus prepared for the reception of medication, a solution of nitrate of silver may be applied thoroughly to the entire surface of the nasal cavity, which will have the effect of diminishing the thickening and congestion of the mucous membrane. This application is recommended to be followed by the propulsion of the vapor of iodine into the nasal passages anteriorly, by means of an instrument similar to that devised by Dr. Roosa, of this city. The instrument used by the writer is made of hard rubber, having a cavity filled with sponge which is medicated with the tincture of iodine. Upon one end of this hard-rubber apparatus is attached a nasal tube fitting into the nostril, while to the other extremity is attached a soft-rubber bulb with a flexible tube. By compressing the bulb, atmospheric air, or steam if desired, is forced through the hard-rubber apparatus containing the sponge saturated with iodine, and diffuses the vapor of iodine throughout the entire extent of the nasal cavities, exerting a powerful alterative and curative effect upon the mucous membrane of the nasal cavities and Eustachian tubes; and especially in cases of swelling and hypertrophic thickening of the mucous membrane covering the turbinated bones and septum. After a very few applications have been made, a very free flow of serum will be induced, and the sub-mucous infiltration will be much lessened. The sense of hearing, which is often impaired by the extension of the catarrhal inflammation to the Eustachian tubes, will often be restored by these applications, after the flow of serum has relieved the congestion and swelling of the mucous membrane. The sense of smell, which in chronic catarrh is often entirely obliterated, is also restored as the mucous membrane returns to its normal condition. These applications can be more or less prolonged as the cases are more or less advanced in character; fifteen minutes, however, being considered by the writer a sufficient length of time, if the applications are properly made. The use of the nasal douche should precede each application. A snuff, composed of equal parts of finely-pulverized camphor and white powdered sugar, is also given to the patient, with instructions to use it *ad libitum;* and patients are unanimous in their expressions of relief subsequent to its use. The preceding, together with the use of injections, and sprays of sulphate of zinc or copper, constitutes the writer's treatment for nasal catarrh.

Spasmodic Asthma treated by Belladonna.

The Philadelphia *Medical Times*, September 19, 1874, contains an article by Dr. GEORGE G. WOOD, in which he says:—

Being located in a neighborhood where spasmodic asthma abounds plentifully in the autumn, I have had a fine opportunity for testing the value of the various remedies recommended for its treatment. Of all tried, which includes the hydrate of chloral and bromide of potassium, I greatly prefer belladonna. It is only when belladonna, after a good trial, proves to be contraindicated, for reasons I shall hereafter state, that I make use of chloral; then I consider it the next most available remedy. Bromide of potassium has failed to produce much effect in the cases where I have tried it, either in conjunction with chloral or alone.

Belladonna, by actual experiments on animals, has been found to dilate the bronchial tubes, and keep them dilated so long as the animal remains under the influence of the drug. And, further, this dilatation persists notwithstanding irritants be employed for the purpose of making them contract. These experiments very satisfactorily account for the medicinal action of belladonna in the treatment of spasmodic asthma.

The pathology of the disease teaches us "that it is owing to a spasmodic constriction of the smaller bronchial tubes, by tonic contraction of their involuntary muscular fibres."

Belladonna, then, acts simply by relieving this constriction of the bronchial tubes.

To get the good effects of belladonna in asthma, it must be given in heroic doses. I usually employ the tincture of the United States Pharmacopœia, in doses ranging from twenty to sixty drops. The strength of the tincture differs so much, as commonly kept in the shops, that the size of the dose must be lost sight of, and the quantity given be regulated by the effect produced. It may be given during the paroxysm with great advantage, but it acts best when given before the attack commences. For example, if the patient has nocturnal attacks coming on after midnight, as is usual, give him a dose just before going to bed, and repeat it if necessary to produce sound sleep. He fails to awake at the usual time for the attack to commence, and sleeps on, awakening in the morning very much refreshed and strengthened. This treatment may be repeated night after night, until sufficient time has been had to remove the tendency of the disease to return, either by changing his location or adopting other requisite treatment, as the case may call for. I could relate several cases to prove the above statements, but will have to omit them for want of space.

Sometimes, but not often, belladonna produces dryness of the fauces, and delirium. These are indications which show that it should be discontinued and hydrate of chloral should be employed in its stead. It may be used on the same principles as belladonna to produce sleep and thus ward off attacks. For the past two years I have been treating spasmodic asthma on these principles, and with most satisfactory results; yet I do not claim any originality in their conception; they are simply hints gathered from many sources, their value being well proven, to my mind, by experience.

(*b*) DISEASES OF THE CIRCULATORY ORGANS.

On Sympathetic Pains in Splenic Disease.

In an article on this subject in the *British Medical Journal*, September 19, Dr. D. EMBLETON writes:—

If the spleen may properly be regarded as an organ quasi-symmetrical in form, like the liver, it would be reasonable to expect, as already said, that it should also receive nerve-twigs from each pneumogastric and the sympathetic ganglia of each side; and that the shoulder-tip pain should consequently be found, when present, at times on one side, at times on the other side, at times, perhaps, on both sides; but, if the anatomy of the splenic nerves be correct, then the shoulder-tip pain, when present, should always be on the right side, together with all the attendant sympathetic phenomena.

The cases given below exhibit sufficiently what has been observed to call the attention of studious members of our profession, particularly of those who have good opportunities of studying diseases of the spleen, to a discrepancy that exists between the results of pathological observation on the one hand, and of anatomical research on the other.

There is error on one side or the other; but I will only say that the observation and verification of symptoms of disease are much more easily performed and repeated than the dissection of the par vagum and the sympathetic nerves in the abdomen—a task which requires a skill, a dexterity, and a patience, with which few only are endowed.

The cases, etc., are arranged in two series. The first contains what has been gleaned from different authors of works on splenic diseases; the second, cases from my own practice at the Newcastle-upon-Tyne Infirmary.

SERIES I. *From Authors.*—Grotanelli (*Ad acutæ et chronicæ Splenitidis historiam animadversionem.* Auctore Stan. Grotanelli, M. D., etc. Florentiæ, 1821) mentions the occurrence of pain in the left, not the right, scapula and shoulder, as well as in the spleen, in splenitis and abscess of the spleen.

The pain in the anterior part of the neck that occurs in cases of wounds of the spleen, and is mentioned in the *Dictionnaire de Médecine*, tome 18me., article "Rate," p. 221, by C. P. Ollivier, 1827, and in some later works, I suspect to be located in one of the pneumogastric trunks in the neck, though, unfortunately, the side on which it occurs is not mentioned. The expression "partie antérieure du cou" is sufficiently vague to admit of such a suspicion, particularly as we know that pain in the trunk of that nerve does occur in some splenic diseases.

Cruveilhier, in his *Anatomie Pathologique*, tome i., 2me livraison, figs. 1 and 2, "Maladies de la Rate," gives us a very interesting case of splenitis. In this case the pain of the left shoulder was signally marked, and was taken by Cruveilhier to be of a rheumatic nature; and it had not appeared to him as worthy of being considered as a purely sympathetic pain. It is also worthy of note that, during the intensity of the inflammatory disturbance going on in and about the spleen, the general circulation, or, at all events, the action of the heart, was not in this case materially quickened; the pulse was *médiocrement* or *peu fréquent*. May this not have been owing to the irritation or excitement of the cardiac branches of the par vagum, through their connection with the splenic branches, having heightened what is called "the inhibitory power of the pneumogastric," which state would thus keep down the action of the heart? This is a possible occurrence, and one which Cruveilhier could not at that time understand, any more than he could the violent shoulder-pain, which he called rheumatic, but which would appear to have been a pretty certain indication, taken with the other symptoms, that severe inflammatory action was going on in the spleen.

It is a well known fact that, in the most vital viscera, severe local inflammatory action may take place, and lead to abscess, with little or no important general disturbance until the bursting of the abscess takes place; even the local mischief going on may not be suspected. But when we have a prominent symptom, like that of severe pain in the shoulder, as in the case quoted from Cruveilhier, we may feel confident, I think, that some one or the other, or more than one, of the pneumogastric organs is deeply engaged in an inflammatory process. In such a case the state of the heart and the general circulation would be a fallacious guide; whilst the shoulder-tip pain might be the best diagnostic aid we could possess.

Dr. Copland, in his *Dictionary*, vol. iii., part 2, notices, under the headings of Acute and Chronic Splenitis, the occurrence at times of pain in the left shoulder in adults and in children.

Dr. Bigsby, in the *Cyclopædia of Practical Medicine*, 1835, vol. iv., p. 56, also notices the occurrence of shoulder-pain, probably of the left side, though the side is not specified, thus:—

SERIES II. *Cases in my own practice.*—These, ten in number, are taken from the records in my Infirmary case-books. Several other cases occur in them; but there is no entry of the existence of shoulder-tip pain in those cases, either because it had not existed, or because observation had not at the time been directed to that point. The cases are purposely much condensed, and the treatment omitted.

These two series of observations, so far as they go, answer in the affirmative the question proposed in heading 6 of this paper. The shoulder-tip pain *does* exist, though not always, in splenic disease. The proportion of cases in which it occurs is not known. But it is curious to observe that, instead of occurring on the right side, as one would naturally be led to conclude, from the book-anatomy of the organ, it would, it is most commonly found on the left side.

In the first series of observations, the pain is not noticed as being ever on the right side. Three of the authors specially mention the left side as its seat. The other two do not name the side; but it is fair to infer that one of them, Dr. Bigsby, means the left side; whilst the observation of M. Ollier may be taken as neutral.

In the second series, pain at the shoulder-tip was complained of by the patient in three cases only, and was not complained of in the other seven. In these three cases, the pain was exclusively on the left side.

The left pneumogastric nerve was found tender on pressure in six of the ten cases, the right nerve in two, and both nerves in one case. In the remaining case, no mention is made of pain or tenderness in either pneumogastric; but there was pain in the left ear, and in the left arm from elbow to shoulder. The cases 7 and 9 were the best marked examples, and the most carefully noted, of the connection of the par vagum with the spinal accessory, and of this with the painful spot at the top of the shoulder.

We have, moreover, in the second series of cases, instances of pains in the left scapula and left side of the chest, left loin and even left leg, left side of neck and head, and left ear, temple, and part behind the ear.

In cases 8 and 10, in which the right nerve was tender, there were no other sympathetic phenomena noted as belonging to that side; but the sudden darting of pain, in case 10, from the compressed tender nerve down the chest to the spleen, was striking, and gave occasion to the remark that, in this case at least, the spleen received a branch or branches from the right pneumogastric nerve, according to the anatomical rule.

We know that all persons are not organized alike; and possibly all spleens are not nerved alike—some receiving their nerves from the right, some from the left side, and some from both sides.

The pain at the shoulder-tip, when present, varies greatly in intensity, and may coexist or not with the splenic pain. It appears to increase with the severity of the splenic affection, as is clearly seen in the interesting case quoted from Cruveilhier, and to decline with its subsidence; being thus in certain cases, and in some measure, a useful indication of the state of the disease.

When active pain at the shoulder is present, not only is the pneumogastric nerve of the same side tender on pressure, but also the external division of the spinal accessory, in its course from the base of the skull to the edge of the trapezius, where it enters that muscle; indeed, when no pain is complained of at the shoulder-tip, these nerves will not unfrequently be found tender, and the patient quite unaware of such tenderness. Some patients, indeed, with splenic disease, appear quite surprised that a tender place of which they were unaware should be made manifest to their feelings. These nerves normally are not tender on pressure, unless it be severe.

The shoulder-tip pain and the nerve-tenderness in these diseases are owing, as I believe they are in liver-diseases, to an extension of irritation or inflammatory action from the diseased organ along its pneumogastric twigs to the trunk of the par vagum. In a case in which the morbid state of the spleen has been intense and continued for a time, this irritation or inflammation passes up the trunk of the nerve to the base of the skull, and even to the origin of the par vagum and the two divisions of the spinal accessory, giving rise there to pains and other disturbances.

There can be little wonder that the external division of the latter nerve becomes affected, when we recollect the intimate incorporation of the internal division with the pneumogastric, and the connections of the internal and external divisions with each other. When the irritation of the pneumogastric has reached the connection of this nerve with the external division of the spinal accessory, it appears to be "shunted," or diverted in part along that division, which it causes to be tender along its whole course to the shoulder-tip, and is at times manifested as pain at that part.

This shoulder-pain in splenic diseases will limit, on the left side most commonly as it does generally in hepatic diseases on the right side, the respiratory movements of the sterno-cleido mastoid and trapezius muscles, and thus the splenic side of the chest will be kept more quiet than it would otherwise be. When liver and spleen are both diseased, then both sides may be similarly affected in their movements.

The above morbid state of the pneumogastric trunk may and does, in its upward course, affect various branches, as those of the stomach, liver, heart, lungs, and even ear, giving origin to symptoms characteristic of disorder of one or the other, or of more than one, of these organs; and an attentive observer may remark that many of the symptoms in cases of spleen-disease are attributable to parts which receive branches from the pneumogastric nerve. In fact, one has only to bear in mind the distribution of the offsets from that nerve to be able to say where pains and other morbid phenomena will in one case or another make their appearance.

There can be no doubt, however, that the morbid influence of a diseased spleen is felt and given notice of, not only by the pneumogastric, but by the sympathetic and spinal twigs of the organ, and through these several of the associated morbid symptoms are produced, especially those that arise in the spine and walls of the body, and in part also those that belong to the viscera themselves.

It is certainly worthy of notice how *unilateral* were many of these sympathetic affections in the majority of the cases given. It was most commonly the left side of the dorsal region of the spine, the left side of the chest, the left side of the neck, the left shoulder-tip, scapula and arm, the left ear, the left side of the head, in front or behind the ear—even the left loin and leg. at times—that were the seats of suffering. Does it not seem very probable that in these cases the spleen derived its nerve-supply from the left vagus? The morbid influence, be it irritation or inflammation, which in these and similar cases constitutes the essence of sympathy of one diseased organ with another, appears to be conveyed from organ to organ along the nerves of the same side of the body more easily and naturally than from half-organ to half-organ along the nerves that cross the median line of the body.

There appears to be little doubt that, like the columns of the spinal cord, as they pass downwards through the medulla oblongata from the brain, the fibres of the par vagum and of the sympathetic, as they pass to the viscera, in part decussate on the median line, some from the right passing to the left side, and others from the left going to the right side, whilst the majority hold on a straight course on their own side. But we do not find anywhere described transverse commissural fibres passing direct from half organ to half organ across the median line of the body—such, for instance, as exist in the anterior and posterior parts of the optic chiasma, connecting together both sides of the optic parts of the middle brain behind and the two retinæ in front. Now, between the eyes there appears to be a greater sympathy in disorder than between the halves of the other divided organs, perhaps on account of the direct nervous connection between the retinæ; and it is perhaps on account of the want of such direct commissural fibres that sympathetic disturbance extends more easily along the nerves of one side instead of crossing the median line.

The Relations of Cardiac to Pulmonary Disease.

At a meeting of the Medical Society of London, October, 1874, Dr. J. M. FOTHERGILL, said:—

Wherever disease of the mitral valve existed, the blood-pressure in the pulmonic circulation was increased. The capacity of the thorax was often diminished by attacks of congestion, and dyspnœa resulted. The pulmonary vessels were thickened and dilated, and a similar condition existed in the muscular chamber of the right head. There was often a development of connective tissue in the lungs, which might possibly give strength to the lung-tissue and protect it from rupture in the violent respiration often found in mitral disease. There might be rupture of the blood-vessels and hæmoptysis. The nerves of the lung were not structurally altered, but congestion produced the dry harsh cough pathognomonic of cardiac disease. The effects of venous congestion were felt in the bronchial veins; and in advanced cases there was usually bronchorrhœa. Some were inclined to regard this as due to the increased pulmonary congestion, but the clinical fact was, that this so-called bronchitis was best relieved by digitalis, which increased the blood-pressure in the pulmonic circulation. The true pathology was fullness of the bronchial vein. The pleuritic effusion of advanced heart-disease was also due to venous fulness. At other times, disease of the respiratory organs induced changes in the right heart. A case recently recorded by Dr. A. W. Foot showed that as well as right side hypertrophy there was enlargement of the pulmonary artery and its valves, by a hyperplasia of cell-elements not passing into inflammation. Commonly, disease in the lung led to disease in the circulation, but, as Niemeyer pointed out, this was not the case in the diminished bulk of blood in pulmonary tuberculosis. Frequently, in acute disease of the respiratory organs, death threatened from exhaustion in the right heart, where there was pre-existing mitral disease. Attacks of bronchitis were very fatal, unless the right heart was remembered in the treatment. In the treatment of diseases of the heart and of the respiratory organs, the true pathological sequences must be borne in mind, and certain consequential changes foreseen and guarded against. Dr. Thorowgood expected that venesection would have been mentioned among the remedies, for in cases of great cardiac dyspnœa, where the vessels were turgid with blood and the right heart embarassed, great relief was obtained by venesection. He considered three methods of treatment to be useful, viz.:—Free bleeding from the arm; purgatives by sulphate of magnesia; and the use of digitalis. Surgeon-Major Black strongly advised bleeding in these cases; and cited the instance of George IV., who, after even eighty ounces of blood had been extracted from him, was relieved by a fresh bleeding. He had found bleeding to be of no use in bronchitis after there was any amount of secretion in the bronchi. Dr. Theodore Williams said that, before agreeing to bleeding in cases of pulmonary congestion from weakened circulation, he should be inclined to try every other remedial means. Free purgation acting on the liver, and, above all, the use of diuretics combined with mercurials, would often relieve the circulation so satisfactorily that venesection was not necessary; and if bleeding were to be done at all, he much preferred the use of cupping-glasses to any other mode. The author had stated that emphysema did not take place unless the lung tissue were structurally weakened; this was, however, not the case, for in the emphysema of children after hooping-cough or bronchitis no structural change necessarily took place, and the natural elasticity of the lungs enabled the temporarily dilated air-cells to recover themselves.

(c) DISEASES OF THE ORGANS OF DEGLUTITION AND DIGESTION.

Successful Treatment of Intussusception.

The annexed instructive case is reported in the Canada *Medical Record*, October, 1874, by Dr. J. T. Finnie.

Early on the morning of Sunday, July 12th, I was called to see the child of Mr. R——, of Ann Street, a fine healthy looking lad four years old. Up to a late hour of the night previous the child appeared to be quite well, but towards morning complained of a pain in his belly, which gradually increased in severity, accompanied with a desire to go to stool. Nothing, however, was passed but a small quantity of watery fluid slightly tinged with blood. The parents becoming alarmed sent for me to go at once and see their child. On arriving I found the patient as described, suffering from a pain in the lower portion of the abdomen, the seat of greatest tenderness being about the right side of the umbilicus. No vomiting was present at this time, beyond what resulted from the administration of a dose of castor oil, given previous to my visit, it having been rejected almost immediately after being swallowed. I strongly suspected invagination, but as symptoms so far were not urgent, I merely gave a small dose of opium ¼ of a grain, with instructions to repeat the same in two hours if the pain continued. At eight o'clock the same morning I saw the little patient again; vomiting had now set in, and the desire to go to stool more frequent, the dejection being nothing but blood. By external examination, I could find no tumor or enlargement; neither by passing my finger up the rectum, could I detect anything to aid the diagnosis.

Being satisfied from the symptoms, that invagination did exist, I by means of an ordinary enema syringe injected a large quantity of water into the bowel, but with no satisfactory result. I left with the intention of procuring a pair of bellows and try inflation. After considerable trouble I succeeded in procuring the latter, through the kindness of my friend, Dr. Rodger, who accompanied me. We endeavored by means of *inflation* to affect a cure, but with no better result. As everything seemed to have failed so far, and the child becoming worse, I despaired of success.

Dr. Rodger suggested that a large syringe or stomach pump be used, with a long nozzle. After some hours further delay I succeeded in getting such an instrument. I inserted the gum elastic tube or nozzle its full length, fifteen or eighteen inches into the bowel (per rectum), and after throwing about a quart of fluid into the intestine, suddenly something gave way, with a slight explosive noise. I was satisfied that the invagination was then reduced, and that the diagnosis was correct.

The patient was properly placed in bed and immediately fell into a deep sound sleep, not waking for hours. Once or twice during the night he got up to stool, the motions being fluid, greenish in color and very offensive. From this time the patient improved rapidly, the pulse (which I omitted to mention before) was, while the trouble lasted, very rapid, being 135 to 140, and temperature 103°. Two days after the occurrence the child was well and walking about the house. No cause could be assigned for it. The child had not eaten anything out of the usual diet, neither had he been out of the house the whole day. In cases where the invagination is very high up, as in this case, I would lose no time in resorting to this procedure, if the tube of a stomach pump could be obtained.

Intestinal Obstructions.

Dr. R. L. Payne, of North Carolina, reports three cases in the Virginia *Medical Monthly*, November, 1874:—

The conclusions which I have arrived at from my experience in these and similar cases, are these: Could I always know in the beginning of a case that I had a real intestinal obstruction to deal with, I would never resort to active cathartics or irritating enemata, because they are very often positively injurious by adding to the irritability of the stomach, and causing painful and ineffectual peristaltic action. The same may be said of simple purgative enemata after the bowels below the obstruction have been emptied. Croton oil and all such remedies are dangerous, and the physician should resort to them as little as possible, for the reasons above stated. In fact, after we feel assured that an obstruction exists, we should pursue a "masterly inactivity," so far as all active remedies are concerned, unless a surgical operation becomes necessary, being assured that a meddlesome practice—the *nimia cura medendi*—may often cause the death of our patients. Ice, locally applied and given by the mouth, is a valuable remedy. Ice cream, iced lemonade, and also other acidulated drinks are very refreshing to the patient, and may be allowed in small quantities. A well ventilated room, perfect cleanliness and comforting words are of vast importance.

But *opium* is the king of remedies for such cases. In them, as in acute peritonitis, opium is both to patient and physician truly the *magnum Dei donum*. Given by the mouth, the rectum and subcutaneously, in full doses, it relieves pain, promotes sleep and rest, prevents peristaltic motion; in truth, it splints the bowel, and thus gives the patient the best chances for recovery. Of course nutrient injections should never be neglected. I have seen one patient live three weeks by this means alone, and get well.

(*d*) DISEASES OF THE URINARY ORGANS.

Treatment of Diabetes Mellitus.

Dr. J. Hoag, of Indiana, writes of this disease to the *Journal of Materia Medica*, September, 1874:—

It is one of those diseases, the nature of which, in the present state of medical knowledge, is not thoroughly understood. Post-mortem examinations have not yet unfolded its true character to the satisfaction of eminent investigators. The question where the excessive amount of sugar is generated, has puzzled men of greater wisdom and more profound erudition than we make pretension to. The causes that produce it are vague and unsatisfactory, the grand desideratum is to be able to control this dread disease, and restore the unhappy victim of it to health.

As before remarked, we have the utmost confidence, that with proper care and judicious treatment this can be fully accomplished.

The first thing we do, is to interdict the use of all kinds of fruits or vegetables as food, and anything of a vegetable character save bread made of unbolted wheat flour in as small quantities as can be got along with. I also forbid tea and coffee, in fact all drinks except pure water, or lime water diluted with milk, which may be taken sparingly at meals. The diet must be restricted to fresh meats (salt meats being inadmissible on account of their liability to provoke thirst), cream, cheese, butter, soft boiled eggs, fish and oysters, with, as before remarked, small quantities of Graham bread, but the less of this last the better.

The treatment in connection with the observance of the above rules of diet, and sponging the entire body daily with an alkaline bath, which I have found most successful—which, in fact, has never disappointed me, when the patient observed proper diabetic rules, is as follows, viz:

℞.	Antimonii Sulph. Precip.,	℈j.	
	Pulv. Doveri,	℈ij.	
	Carb. Ammoniæ,	ʒj.	
	Pulv. Opii,	gr.x.	
	Fiat in chart. no. 20.		M.

One to be taken morning and night. Also

℞. Tinct. Cinchon., ℥ij.
Mur. Tr. Ferri, ʒiv.
Tinct. Digitalis, ʒj.
Spts. Lav. Co., ℥j.
Dose, a teaspoonful at noon. M.

This treatment has been eminently successful in my hands, and I respectfully submit it to the trial of my brother practitioners who may be called upon to treat this justly dreaded disease.

Nephralgia, Lithuria (Lithiasis), and Oxaluria.

The following editorial article appears in the *Practitioner*, October, 1874.

There are certain functional disorders of the kidneys and their excretion which give rise to symptoms more or less severe and painful, and which may either by judicious treatment rapidly subside, or by neglect, or errors of diet and regimen, eventually lay the foundation for organic disease of the kidneys and the formation of a calculus within them.

The source of such disordered function is clearly to be traced either to errors of diet and functional disorder in the organs of nutrition, particularly of the liver, or constitutional or hereditary predisposition. In either case the hepatic function is largely implicated, and no plan of treatment can be thoroughly curative which does not carefully consider the important relation of this organ to the urinary excretion. The first term in this article represents a group of symptoms essentially subjective; the second expresses objectively a fact, a visible and demonstrable alteration in the proportion of a leading constituent of the urine; and the third is a term formerly employed to express what was supposed to be a definite and special morbid process with accompanying specific symptoms, but which will presently be explained as only another form of lithiasis, the oxalate of lime found in the cases of so-called oxalura being a resultant of chemical change taking place in the urine by the oxidation of uric acid after excretion. It will presently be demonstrated that the oxidation of uric acid produces oxalic acid and urea, with the further formation of oxaluric acid and ammonia. The well-known powerful affinity of oxalic acid for lime will readily explain the readiness with which oxalate of lime occurs in urines, when an oxalurate of ammonia comes in contact with the numerous lime salts always present in this excretion. For the present the chemical interpretation of these changes may be postponed till the symptoms to which they give rise have been described.

A generic term, nephralgia, is employed to designate the group of symptoms characteristic of gravel or crystalline sediments of uric acid. Nephralgia may be defined as pain, uneasiness, or discomfort in the lumbar or renal region, extending from one or other kidney through the ureter to the neck of the bladder and extremity of the urethra, accompanied by great and often distressing frequency of micturition, without febrile disturbance or other symptoms of inflammatory action, but with marked evidence of sympathetic irritation in organs connected with the kidneys, through the solar, renal, and intestinal ganglia, often expressed by nausea, even vomiting, with numbness of the external cutaneous surface of the thigh. The urine is sometimes scanty, often abundant, highly acid, readily depositing a sediment of uric acid, crystalline or amorphous—most frequently the former, the crystals being, microscopically, lozenge-shaped or rhomboid, barrel-shaped or columnar, simply stellar, or acicular-stellar and hastate, and rarely as cubes. But it must not be overlooked that urine may contain an abnormal proportion of lithic acid, although no crystalline sediment is deposited. When largely in excess, however, the deposit occurs as a red sand, having the appearance of Cayenne pepper: when amorphous, the deposited material is termed gravel, and occurs in masses varying in size even from a pea to a millet-seed.

These uric acid sediments are also accompanied by an abundance of mucous or exudation corpuscles, derived from the renal tubes, the calyces, infundibula and ureters, expressive of the irritation to which the protective epithelium of these outlets has been exposed.

Nephralgia as a symptom may be regarded, then, as expressive of a gravelly or lithic acid diathesis: it arises from the irritation of gravelly particles of lithic acid (amorphous), or of crystalline grains of lithic acid or lithates, detained in the renal tubes, and till washed out by the urinary stream giving rise to the group of symptoms above detailed. Bearing this pathological fact in mind, the remedial agency of diluents, of alkaline citrates and tartrates, or any agent which, while it dilutes the urine and increases its quantity, also renders the uric acid more readily excreted, will readily be admitted. Nephralgia arising from the above causes is recognized without much difficulty, and its temporary relief easily and promptly obtained. The potash salts as effervescing citrates, mild mercurial alteratives and saline purgatives, especially the Carlsbad or Friederichshall waters, speedily effect the desired relief.

As nephralgia is symptomatic of a gravelly irritation of the urinary passages, so, if the gravelly condition continues unrelieved, nephralgia becomes the sign of a calculous disease of the kidney; and, with the addition of symptoms hereafter to be described, is the exponent of that form of renal disease.

In the meantime, however, it appears desirable to describe those minor forms of urinary disturbance, the symptoms of which are more obscure, more liable to erroneous diagnosis, and, in times past, misled many as to their true cause and origin. The disorders referred to are lithiasis or lithuria, and oxaluria. Dr. Prout and the late Dr. Golding Bird described the latter as a distinct and specific form of disease, referred chiefly to the nervous system; ignoring altogether the functional disturbance in the important blood-purifying organ, the liver.

It may be convenient, first, to study and compare the symptoms of what was recognized formerly as oxaluria, with those which are expressive of what is now termed lithuria; and if identity of force and character can be recognized in typical cases, the remaining proof that oxaluric acid is always formed by the oxidation of uric acid, and that oxalate of lime as a urinary sediment is the invariable sequence of the lithæmic diathesis, will be unanswerable proof of their identity. Both lithuria and oxaluria have the following symptoms in common: Frequency of micturition, chiefly noticeable at night; occasional sense of heat, even of scalding, in the urethral passage; a certain uneasiness at the urethral outlet, temporarily removed by emptying the bladder; dyspeptic symptoms of variable character; flatulent uneasiness after food; an irregular, often intermitting pulse; occasional palpitation of the heart; sluggish, torpid bowels; great depression of spirits, often taking the form of severe hypochandriasis; restless and unrefreshing sleep; a constant sense of physical weariness and languor, with unusual mental indolence. These symptoms, frequently met with in gouty subjects, and also in those who are free from the typical symptoms of that disorder, are more commonly attributed to simple dyspeptic causes, the more ostensible symptoms being those which represent disorder in the digestive apparatus, but which in reality as Dr. Murchison has so ably shown in his Croonian Lectures before the Royal College of Physicians, are to be traced to functional disturbances in the liver. Those symptoms described by Dr. Golding Bird under the title of oxaluria belong to a class of disorders characterized by malassimilation, and can be traced chiefly to functional derangements of the liver arising from errors of diet, excess of or disproportioned amounts of fermented liquors, that is, disproportioned to the amount of bodily exercise necessary for their conversion into carbonic acid and water. The want of the exhilarating influence of bodily exercise, particularly if combined with constant tension of the mental faculties, anxieties of business, devotion to the demands of professional life, &c., are calculated to promote this functional disturbance quite as much as dietetic errors or the habitual, although moderate, use of fermented stimuli.

Such then are the causes which are the common origin of the disorder described as lithiasis, but which is more expressively designated as lithuria (Murchison), and that allied, if not indentical, disorder termed oxaluria. The functional disturbances and symptoms in oxaluria are similar to what are observed and described as lithuria; flatulent distension after food, acid eructations, frequent attacks of heartburn and gastralgia, irregular action of the bowels, constipation with hardened stools, occasional attacks of palpitation of the heart, with almost universally an irregular or intermitting pulse. The most prominent symptom, and that which forms usually a leading feature in the description by the patient of his symptoms, is the languor and weariness and sense of bodily indolence which beset him. Mental indolence, with a proneness to succumb to feelings of hypochondriasis, and a tendency to various delusions, are commonly observed in severe cases.

Atropine as an Antidote to Morphia.

Dr. S. WORDSWORTH POOLE, writes to the *Practitioner*, October, 1874:

Many experiments on the lower animals have been performed by Dr. Reese, of Philadelphia, and others, to prove the antagonism of these two narcotics; but they cannot decide that in man the one drug is an antidote of the other; that is, according to the derivation *ἀντί-δίδωμι*, the one ought to be given to counteract the other, and for this reason: animals exhibit an extraordinary tolerance of these poisons—one dog swallowed 8 grs. of atropine one day and 14 grs. the next, and yet completely recovered without any means being taken to save it.

It is plain that observations to be of value to man must be made on man; and as there are at present but few, I hope the following may be of use in determining a question of such grave importance.

The patient was a lady of 28, whose temperament, by nature keen and nervous, had been rendered doubly so by a series of trials both mental and physical, enough to shake a constitution of iron. When quite young she had been affected with brain fever, and the striking feature of that disease, delirium, always showed a tendency to return after any excitement, especially after parturition, and on two occasions lasted for about three days. On the other hand, slight fatigue was often followed by syncope, and she would lie in a trance, scarcely breathing, until stimulants were freely administered.

On the 7th July I had to perform a serious operation on one of the members of her house. Her keenest feelings were all astir, and there was a deep flush on the cheek I never saw before. For two weeks there had been headache and giddiness, and she had fallen down stairs from vertigo.

Suddenly, whilst at tea, an attack of hysteria came on—sobbing, raving, and ejaculations of mental agony, and attempts to tear the hair and face. Then followed two symptoms never present in any of her former attacks—clonic spasms of the oral muscles and slight opisthotonos.

Stimulants were freely given, but to no purpose. It was difficult to keep her from self-injury; and in order rapidly to control and relieve her, I injected one grain of hydrochlorate of morphia at 7 p. m. She was conscious of this, and became for a while more violent and vociferous, but gradually grew manageable, though talking incessantly, and about 8.30 walked with help up stairs, and was laid in bed. Though morphia had never before been injected, the liquor opii had been thus employed in doses of 60 drops as an anodyne, with moderate effect, several times, and it had not produced a symptom which was now very marked, extreme itching about the nose.

At 9 the breathing became very slow, so that she had to be held sitting, as it threatened to stop altogether when lying down. She grew quite still until roused, when the talking went on. As she complained grievously of being kept up, and as the pulse went beating steadily on, I allowed her to lie down, keeping my ear over the heart, to hear if the respiration would return; but the moments sped on, and no breath was drawn, and the trial was abandoned. Brandy had been very freely given; now ammonia was tried by the nostrils; then Silvester's method; then forcible movements; for the respirations stopped, the face became deadly pale, and the pupils were mere pin-points; the voice was silent, and every voluntary movement gone.

About 11 p. m., the horrible feeling was forced upon me that in a few minutes the narcosis would prove fatal.

One resource was left, the injection of atropine, and this had not been tried, as there were not present in my mind many instances of its success, and I had frequently found this alkaloid produce much delirium.

The American *Medical Times* records a case in 1871, where a man swallowed and absorbed an ounce of laudanum, equivalent to 24 grains of opium, became deeply comatose with four respirations per minute, and recovered after having 2-5 of a grain of atropine injected in the course of eighteen hours, 1-30 at a time. In my case, though the dose of the opiate was much less, the coma came on more rapidly, and the respirations were not one a minute.

The patient being propped up in an arm-chair, I injected 1-6 of a grain of sulphate of atropia, and sat down watching with intense interest for a change. In ten minutes the pupils were dilated well-nigh to the full, and the breathing became regular, though very slow; but other changes there were none.

Soon after, Mr. B. P. Matthews, of Chiselhurst, arrived. On taking into account the giddiness, the suffusion of face, and the convulsions, his opinion was that the case was one of idiopathic congestion of the brain, with narcosis superadded. Cold water was applied to the head, and hot water to the feet; and we kept putting fluids into the mouth in order to provoke action of the muscles of deglutition, and thus keep up some vitality, for there was complete acinesia as well as anæsthesia. Altogether her appearance was appalling, and too painful to be minutely described. About 3 a. m. vomiting was induced several times, and a slight moan indicated the vestige of sensation; but the breathing grew stertorous, and the pulse, which had all through beat on manfully, began to flicker, and all hope was abandoned.

I have now to record the most striking instance of successful treatment I have ever witnessed. At 6 a. m. she was laid down, and the large india rubber bottle, hitherto at the feet, was filled with boiling water and applied to the præcordia. The effect was marvelous, well-nigh miraculous. The patient raised herself up, and with both hands tried to push the bottle away, uttering the word *please* in accents indistinct yet recognizable. The cue to the recovery was found, and it is needless to describe the after stages.

Anorexia and prostration lasted for several weeks.

As illustrating the antagonism of the drug, this case presents the serious defect that it is impossible to estimate how much of the cerebral congestion was toxic and how much idiopathic. But this much is certain: the subject was *in articulo mortis* from failure of respiration, with contracted pupils, and immediately on the atropine being circulated through the system these two symptoms disappeared. As these are both acknowledged consequences of opium narcosis, it is plain that the atropine saved my patient from her more threatening foe.

Can this agent counteract the coma or stupor produced by alcohol?

As hypodermic injections are destined to play so great a part in medicine, it may be even in toxicology, one can hardly overstate the need for determining the question of antidotes.

How many of us have not wondered that the serpent, the most venomous of all created things, the very incarnation of evil, should have been worshiped throughout all antiquity as "the good demon," and should have been even to the present day accepted as the emblem of the healing art? Why ophiolatry should have been so general I do not comprehend, in spite of the learning bestowed on the subject, for it existed long before the brazen serpent cured the plague-struck Israelites; but the special assignment of this animal to the god of medicine seems to me a recognition of the fact that by our art the poisonous principles found in nature were converted into agents for the cure of disease—(the idea that it was on account of vipers being often employed in pharmacy is too trivial to be entertained); and the acknowledgment of this great truth seems almost prophetic when we consider how potent and subtle are the remedies now employed, and above all how an instrument closely resembling in its mode of action the tooth of the envenomed beast forms part of the armamentarium of every son of Æsculapius.

[The subject of the antidotal action of belladonna and opium has been ably treated of by Dr. T. C. Smith, in the *Medical and Surgical Reporter*, October and November, 1874.]

The Relations of Drinking Water to Urinary Calculus.

In the London *Medical Times and Gazette*, October 17, 1874, Dr. John C. Murray remarks:

Some agent of especial potency must be in constant operation to cause the inhabitants of Lexington, Norfolk, Norwich, and London to be respectively 54, 41, 25, and 24 times more liable to stone than the poor of Ireland. Dr. England, of Norfolk, attributed the excessive frequency of stone in his quarter to the habit of eating bread new from the oven, to Norfolk dumplings, bad beer, and want of potatoes—all of them accessory; Mr. Crosse, of Norwich, to local disease and dyspepsia, causing superabundance of acid in the stomach and urine. Dr. Peters, Professor of Chemistry at Lexington, Kentucky, in 1846, said, "it is highly probable that the use of limestone water, and a corn and bacon diet, may be the principal cause of the great excess in the proportion of earthy phosphates and oxalate of lime calculi in this region." Since Hale's time in 1741, it has been a popular belief that hard water causes stone and gravel; and the *Times*, in an article on the Emperor Napoleon's case, said that "the mineral ingredients taken into the body in the drinking-water of particular localities" favor the formation of stone. I will not consume space by giving extracts from other authorities whose writings support popular belief in this question, but simply record my opinion that the popular belief is quite right; and that, in Mr. Crosse's opinion, dyspepsia, and Dr. Peters', that hard water induces calculi, we shall find a solution of the cause.

Hard water lessens the solubility of both flesh and vegetables, and neutralizes a portion of the acid of the gastric juice; these together will in some degree influence the digestibility of each kind of aliment, especially albumen, fibrine, casein, and gluten, causing them to remain in the stomach partially reduced until more acid be secreted. Should it also happen that a greater quantity of food has been taken than scanty exercise and the wants of the system require, rancidity and acid fermentation may take place, generating butyric, acetic, or lactic acid. The crude, ill-digested pabulum which results is neither readily assimilated nor thoroughly oxidized in the organism, thus favoring the formation of oxalic acid and excess of urate of soda in the blood, and excessive acidity of the urine. Uric being a weak acid, lactic, malic, hippuric, sulphuric, or phosphoric acid may discharge it from its base as soon as it is eliminated from the saturated and scarcely alkaline blood. From such a state of digestion, and from such blood as is formed from it, the urine cannot be normal when secreted. Instead of soluble urea, there will be a liability to deposition in the tubuli uriniferi of oxalate of lime, uric acid, urates, or biurates of lime, magnesia, ammonia, or soda. If a person knew or suspected that deposits were taking place, and were to drink copious draughts of cold water, the diluted urine, as it passed along the uriniferous tubes, would wash away the threatened danger. But instead, the thirst which is excited is quenched, perhaps, by "hard October," and if the person be not releived by an opportune attack of diarrhœa, there is an imminent risk of renal and then a vesical calculus.

In some cases, where the individual has changed from country to town life, is active and temperate in his habits, instead of acetous fermentation having time to begin in the stomach, the portion of acid which is alkalized by the ingestion of earthy salts is replaced by more (which, however, is neutralized in the duodenum), digestion proceeds, and the new blood being well oxidized, little organic acid remains in the system unconverted. Lime and magnesia may then displace soda from the alkaline phosphates, causing excess of earthy phosphates. This going on, in course of time the urine may become permanently alkaline. The earthy phosphates being little soluble, except in an albuminoid or acid menstruum, are deposited. Digestion may utterly fail, debility ensue, exercise become irksome, and oxalate of lime be found in the urine—a state of no little danger, as profuse perspiration or drinking too little water may prevent the almost insoluble precipitates from being carried out of the body.

My observations have led me to the conclusion that this latter state is most apt to occur in those who have removed from a soft to a hard water district, and that those who were born and have always lived in a hard water part of the country suffer rather from gout, rheumatism, uric acid, and urates.

Nephritis in Scarlet Fever.

Dr. Joseph Coates relates in the *British Medical Journal*, September 26, the following case, admitted into the Glasgow Royal Infirmary, which is of considerable importance on several grounds:—

In the first place, we have here an acute renal complication occurring in scarlet fever, not, however, at the usual date of the nephritis of scarlet fever, but in the course of the fever itself. Secondly, the kind of inflammation is not that usually met with in connection with scarlet fever; we have here a case of interstitial inflammation, whereas it is well known that the parenchymatous or tubal form is that commonly met with. It may be also worthy of remark, in the third place, that this is a case of acute interstitial nephritis, a form of disease whose existence has been doubted by some. In connection with the first of these points, I subjoin a brief history of the case, and an abstract of the *post-mortem* appearances.

Y. R., aged 20, was admitted into the fever wards of Glasgow Royal Infirmary, under Dr. McLaren, on September 30th, 1871. The patient stated that his illness began five days before admission, with loss of appetite, aching pains all over the body, headache, sore throat, difficulty of swallowing, and sickness without vomiting. A scarlet rash was observed by the patient on the second day of his illness; and, on admission, an abundant eruption was present on the trunk and limbs. The throat was slightly affected, but there was difficulty of swallowing. On the day of admission, the temperature was 101.8 deg. in the axilla. After admission, the patient was exceedingly restless, delirious at night, and only half conscious. The eruption is noted as still present on the abdomen on October 4th, and on that day the temperature was 103.4. He died on October 5th, or five days after admission, being the tenth day of the disease.

A *post mortem* examination was made about twenty-seven hours after death. Both liver and spleen were considerably enlarged, the liver weighing close on five pounds, and the spleen twenty-one ounces. The mesenteric glands were also enlarged, and red on section, and there was redness of Peyer's patches and enlargement of the solitary follicles in the large intestine. Both kidneys were much enlarged, weighing together twenty-two ounces. They presented to the naked eye very much the appearances of the large white kidney, the cortical substance being very pale and much increased in thickness.

The microscopic characters in this case were quite unequivocal. The enlargement and paleness of the kidney were due to an infiltration of the cortical substance in almost every part by multitudinous round cells. These were packed in between the tubules, separating them, but not to any great extent destroying their epithelium. The cells were about the size of white blood-corpuscles, and had a plump, full appearance. A thin transverse section shows the appearance described exceedingly well, especially where the epithelium has dropped out; and such is the number of the round cells, that the section has a very close resemblance to one in my possession, taken from a leucæmic nodule in the kidney, there being a similar close infiltration of the interstices between the tubules. Of course there is the essential difference, that, in the present case, the condition is generally diffused throughout the cortex. The epithelium of the renal tubules was very little changed, perhaps slightly enlarged and granular.

OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

I. OBSTETRICS.

The General Treatment of Parturition.

Dr. **Wm. Goodell**, physician to the Preston Retreat, a lying-in hospital in Philadelphia, gives, in the American supplement to the *Obstetrical Journal of Great Britain*, the treatment of women in child-bed customary in the Retreat. It has several novel features:—

Every patient, upon admission, takes a warm bath, and at least once a week thereafter before her delivery. If she exhibits signs of feeble health, she is at once put upon the use of quinia, and of the house mixture, consisting of two parts of the muriated tincture of iron, with three of dilute phosphoric acid. The habitual constipation of pregnancy is met by the administration, either in the morning of a teaspoonful of pulv. glycyrrhizæ comp. of the Prussian Pharmacopœia; or, at bedtime, of four Lady Webster's pills (pil. stomachicæ). When a more active purge is needed, the pulv. jalapæ comp. or the pil. cathartic comp. (U. S. P.) is given. Headache and sleeplessness are treated by warm baths, by full doses of potassic bromide, and by the above-named medicines, when indicated; albuminuria is dealt with in pretty much the same way, but always with iron and phosphoric acid. The regular diet is plain and wholesome, yet more liberal than is usual in charitable institutions. Apart from the frequent use of aperients, a relaxed condition of the bowels is promoted by serving table-syrups at every meal, by fruits—fresh or dried, according to the season—and by all such vegetables as can be eaten raw, viz., lettuce, cress, radishes, leeks, onions, tomatoes, cucumbers and cabbages. Of these, in this latitude, an ample supply is attainable during nine months of the year.

When a patient falls into labor, she first has her bowels moved by an injection, and then takes a warm bath. The bag of waters is usually ruptured artificially, and the liquor amnii collected in a grocer's scoop. The second stage of labor is never allowed to linger; any delay is met by the use either of the vectis or of the forceps. As soon as possible after the birth and the removal of the child, the placenta is delivered by the Credé method. I may here remark that the still pulsating cord is first cut, then "stripped" of its blood, and as much as possible of its gelatin, and finally tied, when it has ceased to bleed and has become flaccid. Neither belly-band nor any kind of dressing is afterwards applied, but the cord freely dangles about from the navel. Treated in this manner, it dries up without any bad smell, and falls off like a ripe fruit, without leaving a raw stump. Out of more than five hundred infants treated thus, not one has had a pouting or sore navel requiring treatment, and not one has had an umbilical hernia. I am also well satisfied that, by dispensing with the belly-band, I have fewer cases of inguinal hernia. Those of my readers who wish a more detailed account of this method of dealing with the cord, can consult the *American Journal of Obstetrics*, vol. iii. p. 327.

Ergot is hardly ever resorted to as an oxytocic; but one teaspoonful of the fluid extract is invariably given as soon as the head presses upon the perineum. When the labor is over, the perineum is examined, and, if torn, is at once sewed up with silver sutures. The patient is now washed clean, and a binder and cylindrical compress applied, the latter in the hollow just beyond the fundus of the womb. The bedstead on which she has been delivered is next wheeled from the delivery-room to a ward and placed along the side of a bed, to which the woman now hitches herself over. Contrary to the generally held opinion that absolute rest after labor is indispensable, in no single instance has this muscular exertion apparently brought about a flooding. It seems rather to condense still further the uterine globe. Very rarely, indeed, has a flooding happened outside of the delivery-room. However warm the weather, a blanket is thrown over the patient, and a foot-warmer put to her feet. These remain until reaction sets in and she asks to have them removed. A mug of beef-tea made from Liebig's extract is now given, and the child put to the breast as soon as it will take it. Thereafter, in a natural convalescence, the woman gets tea, boiled eggs, bread and butter, for breakfast; potatoes, and some kind of meat, for dinner; stewed or fresh fruits, tea, bread and butter, for supper. On the morning following the day of her labor, the binder is removed for good, and she slips into a chair while her bed is making. This is repeated once or twice a day until the fourth or fifth day, when she, if so disposed, gets up and dresses herself. No patient quits her bed against her will; yet the force of example is so great that very few care to stay in bed, when they see their companions up and about.

No woman is allowed to suffer from after-pains. Whenever these are complained of, one-quarter grain doses of morphia are administered every hour until relief is obtained. In stubborn cases of after-pains I have found nothing act so promptly as the exhibition of ten grains of quinia every six hours, until the ears ring. For this valuable suggestion I am indebted to my friend Dr. Fordyce Barker. Bed-pans are not employed, except in cases of illness, or in cases requiring vaginal injections; but each woman has her own chamber-pot, which she uses indifferently, either in the sitting or the knee-elbow posture. Every woman is required to wash her own person at least once a day, and that with carbolic acid soap and a wad of fine oakum, which is at once thrown away. Only under very exceptional circumstances does the nurse cleanse the patient. Should the lochia become offensive, the woman is made to get out of bed and slip into a chair three or four times a day. This usually corrects the fetor; but if it does not, then and only then is a solution of potassic permanganate thrown up into the vagina. Firmly believing the nozzle of a syringe to be the medium of virus communication from patient to patient, I avoid the use of vaginal injections as much as possible. For a like reason, the temperature thermometer is not habitually used, but only in single cases as an aid to diagnosis.

Whenever the lochia are offensive, or the pulse is over 90, or the thermometer indicates a temperature higher than natural, or pelvic pains are complained of, or, in short, whenever any untoward symptom appears, quinia is given in from six to ten grain doses every four hours, until the ears ring. In addition, for abdominal pains large doses of morphia are given, and the whole belly is painted with iodine, and covered with a mush-poultice. The canonical purge on the third day is dispensed with. A patient has usually a movement of the bowels either before or on the day she gets up for good. If this does not happen, she takes four Lady Webster's pills at bedtime, which then act on the morning of the sixth day. As soon after getting up as she feels strong enough, she takes a warm bath.

Thus far I have stated the means adopted at the Preston Retreat for the prevention and the treatment of puerperal diseases. I now propose to give my reasons for such of them as need some explanation.

But few words are needed to explain why the ordinary chamber-pots are used, and why patients are made, once or twice a day after the first, to get out of bed and slip into a chair. The presence of putrescent fluids in the utero-vaginal tract is recognized by all writers as the great cause of the autogenetic variety of puerperal disorders. But the recumbent posture of itself necessarily tends to detain these poisonous discharges in contact with the traumatic lesions of labor. These discharges may also be partly imprisoned in the vagina through the swollen condition of the more external soft parts, or partly corked up in the uterine cavity by the presence in the cervical canal of a putrid clot. In such cases detergent vaginal injections are highly recommended. But clinically they will be found of limited value; for they cannot reach high enough, and do not ordinarily dislodge a large clot even when situated low down. True, intra-uterine injections are not open to one of these objections; but, apart from their being attended at best with some degree of hazard to the patient, the operation is too delicate a one to be intrusted to a nurse. Besides, in hospital practice the nozzle of a syringe—to say nothing of the fingers of a nurse—is, I fear, so often one of the vehicles for the transmission of virus, as to make this means of disinfection of doubtful propriety. In a local outbreak of fever, especially of the diphtheritic form, I should, however, suggest the use, immediately after labor, of vaginal injections containing the nitrate of silver or the persulphate of iron, in quantities large enough to sear over the traumatic lesions of labor. Such injections I have had no occasion to try, but they ought to inhibit active absorption and promote healthy granulation.

While seeking a substitute for the syringe, my attention was directed to the fact that the act of sitting on the ordinary chamber-pot often forced out putrid shreds or fetid clots, which had not been washed away by vaginal injections. This led me to discard, except in cases of positive illness, the use of bed pans or of any other utensil—such as urinals—which can be used by a woman when lying on her back. Shortly after making this change, I found that, for like reasons, some shrewd and very practical writers of the last and the present century urged an early departure from the recumbent posture. Further, a residence of some years in the East had taught me that Oriental women, at least, can with impunity get up and be about a few hours after delivery. Influenced by these facts, I decided, cautiously at first, to introduce into the wards of the Retreat a system of puerperal gymnastics, consisting in no restraint whatever as regards the position in bed, and in the daily release from an irksome confinement. I was much pleased to find that the muscular exertion needed for these movements, so far from inducing hemorrhage, excited the womb to contraction, and emptied it and the vagina of their putrid contents I can testify that whenever the lochia are offensive, these upright positions, repeated several times a day, are excellent deodorants, better in fact than any detergent vaginal injections. There is yet another advantage gained by this plan; it affords, in hospital practice, an excellent opportunity for bundling the bed and bedding out of the ward and giving them a much-needed airing. In a crowded hospital-ward the hygienic importance of such repeated disinfection can hardly be over-estimated. At the risk of being called an enthusiast, I will go a step further, and hazard the assertion that here is a form of puerperal septicæmia not necessarily accompanied by putrid lochia—at least not appreciably so—but indicated by high temperature, rapid pulse, complete anorexia, heavy sweats, and, later, by herpes labialis, which stubbornly resists treatment until the patient is made to get out of bed. This I have seen often enough, after keeping a woman on her back for some pelvic disturbance, to prevent any mistake as to the relation of cause and effect.

Lying-in women are encouraged to get up for good when they feel so disposed, because there are, to my mind, strong objections to the rigorous maintenance of the recumbent posture. Labor is, in general, a strictly physiological process, and there can be no sound reason why it should be made to wear the livery of disease. Nature teaches this very plainly, for most women wish to get up long before their physicians are willing to let them. The fact of a woman's wishing to get up is to me a very good reason why she should get up. In the second place, few physicians will deny that nothing so relaxes the tone of muscular fibre as a close confinement in bed. In my experience a woman ordinarily feels stronger on the fifth day than she does on the ninth, if rigorously kept under quilts and blankets. Once more, the upright position not only excites the womb to contract, but, by distributing the blood and equalizing the circulation, it actually lessens the amount of the lochia and shortens their duration. On the other hand, the dorsal decubitus keeps up a passive congestion of the womb as a whole, the engorgement of the greatly hypertrophied placental site, and a blood-stasis in the now thickened posterior wall—all important factors in hindering the process of involution. Again, uterine diseases are hardly known among those nations whose women early leave their beds. From passages in the writings of the classics, it is evident that among the ancient Greeks and Romans, those models of physical strength and beauty, the women arose and even bathed in a running stream very shortly after delivery; in some cases, on the very day. Finally: what is sounder than all theory, a sufficiently long and well-sifted experience has proved to me that, by such a treatment, convalescence is rendered far more prompt and sure. At this result, very unexpected to the multiparous patients of the Retreat, they are constantly expressing their surprise.

The arguments against this customary purge on the second or the third day are to my mind very sound. I am well satisfied that the "milk-fever," for which it was originally introduced into practice, is essentially a myth. Genuine "milk fever," as such, is a rare complication, and when present, of no significance whatever. Unless the nipples are chapped or abraded, the engorgement of the breasts hardly ever leads to abscesses. In proof of this assertion, how rarely does mastitis follow still-births! In the vast majority of cases, the occasional constitutional disturbance, the chill-and-fever on the third or fourth day—the so-called "milk-fever"—is owing to a septic cause, and not to a mammary one. True, the breasts are by this time swollen and painful, but it is a mere coincidence, and coincidence is here mistaken for causation. Purges are, therefore, not only wholly unnecessary, but they disturb the equilibrium, and, what is worse, promote the absorption of septic matter. Partly from increasing the activity of the absorbents, the hemorrhages of labor are very liable to be followed by blood-poisoning. Now, the same result may be logically predicated of a depletion in the shape of a purge. Were my readers to go over their cases of puerperal fever or of other puerperal diseases, I think that they will find some of them dating from the day on which a purge had begun to act. Is it not more than a mere coincidence that these diseases attack a woman usually on the third or the fourth day—viz., the day of or following the administration of the customary purge? Three instances of puerperal peritonitis, two of them ending in death, have come to my knowledge, which were referable as plainly as could be to purgation. In one, the lady was slowly but surely mending from the effects of a severe instrumental delivery. For some reason or other she took, in the third week, an ordinary dose of citrate of magnesia. This violently purged her, and at once brought on a fatal attack of fever. In the other two the patients could not have been doing better, until they got a dose of castor-oil, which was given for no other reason than that the authors of our text-books were haunted by the bugbear of "milk-fever." Did space permit, I should like to show that this opinion is not shared by myself alone; that cases of phlegmasia dolens have been traced to the effects of a purge, and that the use of aperients during an epidemic of puerperal fever has been strongly condemned.

Quinia is given without stint, because, apart from its well-known tonic and antiperiodic properties, it possesses others which make it, above all remedies, the one best suited for peurperal disorders. By lowering high temperature it retards the oxidation of tissue, and hinders the formation of fibrinous concretions. By shortening the excursions of uterine fibres in their alternate contractions and expansions, it lessens the diastolic engorgement of the womb, diminishes the calibre of uterine blood-vessels, and thereby tends to keep their protective coagula from becoming loose and soluble. By contracting the placental site it proportionally limits that area of absorption. By constringing the coats of capillaries, and by its inhibitory power over the migration of colorless blood-corpuscles, it either arrests suppurative inflammation or restrains its violence. Finally, it seems to exert a positive curative action on the blood in cases of putrid or purulent absorption. Clinically, I have found nothing comparable to quinia as a prophylactic against puerperal disorders, as well as a remedy for them. But it must be given early, frequently, in large doses, and pushed to a high grade of cinchonism.

Ergot is a very untrustworthy oxytocic. One never can tell beforehand whether it will behave kindly, or run a muck. It is, therefore, no favorite with me. The vectis and the forceps, being under perfect control, are far better oxytocics; their aid is therefore often invoked, in order to save a woman's strength, and to avoid that laxness of uterine fibre following a long and weary labor. Ergot is, however, given as the head is about to emerge, in order to lessen the chances of a flooding or of unruly after-pains, and to aid the process of involution by condensing the uterine globe to its minimum size. For an analogous reason I feel persuaded that Crede's method of placental delivery provokes to a more complete involution. It certainly empties the womb of all clots, and squeezes it down to its smallest capacity.

Co-development of Intra and Extra Uterine Pregnancy.

Dr. John T. Hodgen gives this case in the St. Louis *Medical and Surgical Journal*, August, 1874:—

M. S. C., aged 27, a healthy female, menstruated regularly from the first establishment of the flow, until November, 1872.

Suffered from nausea and general discomfort during December, 1872. Early in January, 1873, had pain in lower part of abdomen, to left of median line. On

January 8, 1873, a careful examination revealed the breasts enlarged, firm and tender, with the papillæ about the nipples prominent. The uterus enlarged, and to its left, within the pelvis, a sensitive tumor, larger than the uterus at that time. The pain, with nausea and vomiting, continued through January and February; the uterus and tumor continuing to enlarge in about equal ratio. She grew pale, thin and weak, and was confined to her bed. Anodynes were constantly administered to relieve pain. At the end of February, the pain, nausea and vomiting ceased, and general health improved.

Both the uterus and tumor had now arisen out of the pelvis, and the outline of the right enlargement could be distinctly traced as continuous with the neck of the uterus, while the tumor to the left, though closely pressed against the other, was distinct.

At the end of February, the tumor to left ceased to enlarge, and gradually diminished in size, but remained tender to pressure, and in a month or two presented some irregularities in form, that had not before been observed.

The tumor diminished in size until the 17th of August, 1873, when Mrs. C. was delivered of a healthy, living child, after a labor of eight hours. The placenta was adherent and required the introduction of the hand for its delivery. The tumor to left could now be distinctly made out, and was not more than one-fourth the size it was at the fifth month.

Saw Mrs. C. February 10, 1874. She says the tumor is now not larger than a large lemon, and sometimes cannot be distinctly found. General health has been good since confinement; suffers not at all at present, though for several months after confinement the tumor was sensitive.

April 27, 1874, saw and examined Mrs. C. Says she suffers pain and tenderness in the tumor, after more than ordinary exercise, and pain extends down inner side of thigh. A bimanual examination determines the tumor to be about the size of a lemon, somewhat irregular, a little sensitive to touch, moves freely with the uterus, also moves without the uterus, but not so freely—tumor is higher in the pelvis than the uterus and pushes that organ to the right Mrs. C. menstruates regularly, though she is nursing.

This case was probably one of tubal pregnancy, in which the sack burst about the fifth month, without much hæmorrhage—the fœtus died, and a limited peritonitis occurred. It is probable that the left fallopian tube has been obliterated, and of course the ova from the left ovarium cannot now reach the uterus.

Two Placentas and a Single Fœtus.

Dr. Reamy, in The *Clinic*, September 26, 1873, reports a case:—

He was called in consultation to see a woman who had been delivered on the preceding day of a deformed still-born child. He was informed that the placenta and cord were perfectly normal, although somewhat smaller than usual. The umbilicus of the child was normal. The deformity of the child, as he was told, consisted in the fact that there was no neck, and no occipital bone; the frontal and parietal were present. The features were small but perfect; the head was attached to the trunk without the interposition of a neck. The fœtus presented the appearance of having been dead for some time. There was some hemorrhage after delivery. The physician in attendance detected another cord protruding and thought he discovered some foreign body and two cavities; this view was corroborated by a physician whom he had called in consultation. They however were not positive and allowed the patient to remain until the following day, when Dr. Reamy was called. The woman had during the night suffered considerable loss of blood, and when the doctor found her was almost *in articulo mortis;* pulse was 160-170, respiration about 75. The (2d) cord was still protruding, and on passing the hand into the vagina it reached what seemed to be the placenta. Did not think it proper at the time to make any violent attempts at removal, as the patient was in such a low condition, although not then losing any blood. Soon afterward, however, he removed without any difficulty a full sized placenta, which was fatty over about two-thirds its extent; and the cord was normal, though smaller than usual. The end of the cord presented the appearance of having been torn off. The uterus was in its normal position and tolerably well contracted ; there was no double cavity. No hemorrhage followed the delivery of the second placenta and cord. The patient died a few hours afterward. The strange features of the case were the two placentæ, two cords, only one child and only one point of attachment. Had there been a blighted ovum he could not understand how the cord could maintain its normal size and development. It presented the appearance of having had blood circulating through it only a short time previously. The physician first in attendance was positive that there was no second fœtus. The doctor thought that both cords must have been attached to one fœtus, although he had been told that there was no indication of such attachment.

On Difficult Occipito-posterior Positions of the Head.

Angus Macdonald, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Diseases of Women and Children, has an article on this subject in the Edinburgh *Medical Journal,* October, 1874, from which we extract as follows:—

It has long been known among accoucheurs that when the head arrives near the base of the pelvis, with its long diameter so disposed that the occipital fontanelle is directed towards either sacro-iliac synchondrosis, the normal mechanism of delivery is liable to be tedious, and even to be frequently interrupted and deranged.

Associated with these interruptions and derangements, one particular mode of delivery is apt to arise, which the older accoucheurs were wont to term "face to the pubes." This, we know now, is no particular form of presentation however, but simply an arrested occipito-posterior position; but it no doubt proves itself a difficult method of termination in those cases. That nevertheless the termination of labor, even in the normal manner with rotation of the occiput forwards, under the aid of forceps, is not unattended with difficulty, and requires special care and management to prevent injuries to the lower part of the vagina in primiparæ at least, has been long impressed upon my mind. It was this fact, combined with the conviction that there exists among the ordinary authorities on the subject a somewhat unsettled opinion respecting the treatment of difficult occipito-posterior cases, that has induced me to draw the attention of the Society to this subject for a short period of time.

Believing as I do, with many Continental authorities, that the head usually enters the brim with its long diameter either exactly or approximately in the large transverse axis of the inlet of the pelvis, I am bound to hold that cases of occipito-posterior presentation do not become such till the head has advanced some little way into the pelvis, and indeed do not present under ordinary circumstances any special difficulty till the head meets the resistance of the floor of the pelvis.

In support of the statement now made, relative to the non-existence of an initial

Solayres obliquity, we have to state that, in a considerable number of cases carefully examined during the early stage of labor, we have satisfied ourselves that the head passes approximately transversely at that time across the inlet.

But furthermore, the supporters of the initial Solayres obliquity have yet to prove under what force, or for what purpose, the long diameter of the fœtal head should seek to squeeze itself into the oblique of the brim, when it has the choice of accommodating itself in the transverse diameter, which is at least by half an inch the larger.

The great bulk of the cases presenting the occiput backwards terminate quite naturally without any assistance whatever. Indeed, they may be found to terminate with more than the usual celerity at the latter part of the second stage. This, however, is commonly preceded by a period of distinct retardation. I have again and again seen such a case, in which the head had been arrested in its advancement near the outlet for half an hour, an hour, or even an hour and a half, while the pains were moderately strong, terminated by a single pain the moment the head effected its normal long rotation. It is barely a month ago since I purposely allowed an occiput to the right, which assumed to some extent also the nature of an intermediate or brow presentation, to be delayed for an hour under pretty powerful pains, which were distinctly causing the parietal and frontal ridges on the left side of the head to bend; but whenever I pulled downwards and forwards the occiput, and pushed upwards the brow, two pains of no great severity,—1st, terminated the rotation forwards of the occiput, and, 2d, the expulsion of the head. This case, as I maintain all cases capable of easy rectification to be, was a small head, and the pelvis was of fair size. No doubt, a large proportion of those labors known as "precipitate labors," if carefully classified, would be found to be cases of sudden termination of occipito-posterior positions of the head.

Between positions of the head, with the occiput towards the left and backwards, and those of the occiput towards the right and backwards, I do not think there is such a disparity as Naegele's observations would lead us to suppose. I am sorry I have not kept an accurate record of the cases I have had presenting this peculiarity; but my conviction, from the frequency I recollect of meeting it, is that it is not at all unusual. One point in respect to those cases of this position which, in my experience, have turned out difficult, is this, that they very much more frequently than the corresponding position to the right, terminate as "face to the pubes."

This leads me to say that though, as noted above, the great majority of occipito-posterior positions of the head occur in labors which terminate naturally, yet the long rotation is so apt to fail, that a considerable proportion need to be aided by instrumental or other means.

These cases further divide themselves, in regard to their terminations, into,—

I. Cases which terminate by the original occipito-posterior position becoming exaggerated, the forehead and brow of the child being squeezed against the body and descending ramus of one or other of the pubic bones, and the vertex and occiput ultimately sweeping the perinæum, *i. e.*, as "face to the pubes" of the older authors. This, however, is, according to my experience, the result only in about 25 per cent. of those difficult or operative cases; or,—

II. The rotation takes place while the operator is exerting traction efforts, and that purely as a result of the mechanical conditions, at the outlet of the pelvis, depending little, *if in any degree,* upon any voluntary rotatory efforts on the part of the operator.

But if the soft parts of the mother are tight and non-elastic, this rotation is exceedingly apt to lacerate them at the outlet, as it throws the forceps into an oblique position, against the injurious consequence of which the operator has to guard.

So far as my experience goes, it seems to point to the conclusion that whether an obstructed case of this kind terminates as "face to pubes," or by rotation of the occiput forwards, if the case is finished instrumentally, depends more than anything else upon the period at which the instruments are applied. If they are applied comparatively early in the case, we have rotation at the outlet; if at a comparatively late period of the labor, we have the case terminating without rotation.

Let me now briefly analyze the records of twenty-six cases of difficult occipito-posterior cases, which I have within the last two or three years delivered by forceps, either in my private practice, my dispensary practice, or otherwise.

Of these twenty-six cases, six terminated as "face to the pubes," whilst twenty underwent the normal forward rotation of the occiput, and ended in the ordinary way by extension of the head below the symphysis pubis under the influence of traction only. I say emphatically *under the influence of traction only;* for I never exerted the slighest force in the direction of favoring the rotation movement, and indeed have often wished that it could have been delayed until I was able to have removed the forceps.

Of these twenty-six cases, eight, or nearly one-third, presented with the occiput towards the left sacro-iliac synchondrosis; and of these eight, four, or 50 per cent., terminated as "face to the pubes."

Of the eighteen cases which presented the occiput towards the right sacro-iliac synchondrosis, only two terminated as "face to the pubes."

Of the twenty-six cases, twelve, or 46 per cent., occurred in primiparæ, so that in them we had to contend with defective rotation in connection with soft parts in a state of considerable rigidity.

Of those which terminated as "face to the pubes," four of the mothers were primiparæ, and two multiparæ. In those six cases which ended as "face to the pubes," in one case only, and that, too, a multipara, did there occur anything other than the most trifling laceration of the soft parts.

In this case the laceration, which was not at all severe, affected the back wall of the vagina without involving the perineal tissues, and happened at a part where the forceps could not reach. It very soon healed up, however, and never gave the least inconvenience.

I have been most disappointed with the results in the cases wherein rotation took place. I do not mean to say that the results have been at all bad; for of these twenty-six cases, only one terminated otherwise than most favorably for the mothers; and in the fatal case, the result, I am satisfied, was not referable to the forceps operation. That the members of this Society may also satisfy themselves on this head, I will record the case at length in the course of this paper. As it is a typical case of the difficulty I complain of, they will also thereby be able better to understand the grounds of my opinion as to the trouble which one meets in the management of such cases.

I am now inclined to believe that lacerations of the lower third of the vagina in instrumental deliveries are far more common than one would expect, if he formed his opinion solely by the little reference made to them in the ordinary British text-books. But it is necessary here to notice, that by lacerations of the vagina, I do not mean those of the fourchette or perinæum, which are allowed on all hands to take place in greater or less degree in almost every first case. On the contrary, I understand interruptions to the continuity of the vaginal mucous membrane in other parts of its circumference than in the mesial line posteriorly.

At one period of my obstetrical practice, I seldom or never found any lacerations, incisions, or abrasions of the vaginal mucous membrane after operating. But now, after having my attention more strongly than pleasantly drawn to this subject by one or two of those troublesome cases, and also from finding statements corroborative of my observations in several German authors, more particularly in Schroeder, I must confess that I seldom meet with a moderately severe instrumental case in a primipara without being able to detect some little button-hole, abrasion, or even more serious injury of an incisive nature, in the vagina.

I cannot charge myself with operating with any less care, but am conscious that the very reverse is the case; and I trust also that increased experience and advancing knowledge are not diminishing my skill in the use of forceps; only, after every forceps operation of any severity, I am now in the habit of subjecting the vagina to a careful tactile scrutiny, which I did not do formerly. On this principle, I explain the difference between my present and former experience.

Luckily, however, such abrasions or button-holes seldom lead to any really injurious results. Having due regard, however, to the facility with which parturient women become the victims of all sorts of septic influences, one would like to avoid those solutions of continuity as far as possible.

But now, to take up the consideration and special treatment of those two terminations separately. I hope the Society will pardon me if, for perspicuity's sake, I briefly run over the chief points in the mechanism of a case which terminates as "face to the pubes."

Let us suppose the head in the left oblique diameter, and at or near the floor of the pelvis.

The occiput, instead of advancing downwards and forwards from the region of the left sacro-iliac synchondrosis, so as to get forwards from left to right successively into the transverse, then into the right oblique, and ultimately under the left descending ramus of the pubes, while the forehead should glide from right to left backwards over the right side of the pelvis until it ultimately reaches the hollow of the sacrum, keeps still backwards, and indeed, to a small extent, rotates in quite an opposite direction, becoming thereby nearly, but never completely, in the middle line of the sacrum. The forehead, on the other hand, rotates slightly forwards from right to left, leaving the region of the right foramen ovale, and becoming compressed against the body of the right pubic bone, and also against the upper part of its descending ramus. By this mechanism, or rather failure of mechanism, the child's head is made to engage at the outlet with its large fronto-occipital diameter in the small oblique diameter of the outlet of the pelvis, instead of presenting its lesser suboccipito-bregmatic, which is the diameter engaging at the outlet in ordinary vertex cases, when the head undergoes the normal extension, with rotation of the occiput forwards. It follows that thereby it must meet with greatly increased resistance, and so it does. The great resistance thus presented to the advance of the head in this position is such as to implant a special type to a child's head thus born.

It is accordingly found that if the labor is prolonged while the head is situated as

I have already stated, it becomes remarkably shortened in the fronto-occipital direction, and elevated in the bregmatic region, giving the child's head, if examined immediately after labor, a very curious and rather odd appearance. Indeed, so great is the tension to which the fœtal head is exposed under such circumstances, that occasionally, as I have myself seen, a large cephalhæmatoma is formed in the region of the anterior fontanelle.

If we now examined such a case for the first time, we should find that the anterior fontanelle was easily reached, and immediately behind the symphysis pubis only a little more of it would be to the right than to the left of the mesial line, while the sagittal suture would run nearly antero-posteriorly, but inclining slightly to the left towards its posterior extremity, while the posterior fontanelle could be reached with very great difficulty.

If now the pains are very strong and the head not too large, the forehead remains fixed against the right pubic body and the right descending ramus of the pubis, whilst the occiput is gradually pushed down over the lower part of the sacrum, coccyx, and perinæum. In the course of this advance of the occiput, it follows that notwithstanding the relief gained by the shortening of the occipito-frontal diameter under the influence of the pains, the great bulk of the child's head must so act as to excessively distend the perinæum, inasmuch as the forehead is incapable of advancing upwards and forwards, as the occiput does when it escapes from under the symphysis, and thus eases the tension of the forehead as it sweeps over the perinæum in ordinary vertex cases. If, however, the occiput is gradually advanced under the pressure of pains of moderate severity, and the perinæum is not found to tear, first the mass of the vertex, and then occiput, get over the anterior edge of the perinæum; after which the forehead and face of the child, which hitherto had been tightly implanted behind the pubic bones, get loosened, and are enabled to slip downwards and forwards. The birth of the head is in this way completed by a motion of extension. The movement called restitution is, in this case, such as to make the face of the child look towards the right thigh of the mother, and to bring the right shoulder forwards under the symphysis pubis, whilst the left is made to sweep the perinæum. The accomplishment of this mechanism unaided, presupposes a small head and roomy pelvis, conditions under which, though I have seen it, it has occurred in my experience only rarely. Under such circumstances, of course, no real difficulty does or can arise, and the duty of the accoucheur is clearly to keep from all interference.

I am led by what I have observed of such cases to believe that we seldom meet with this kind of mechanism, or rather failure of mechanism, in roomy, well-formed pelves, with normally-sized heads; as under such conditions occipito-posterior cases complete the normal rotation of the head forwards, and the cases are finished without interference, and "face to the pubes" seldom or never requires to be encountered. They occur almost invariably, so far as my experience goes, in cases where the head in relation to the pelvis is disproportionately large, or where there is reason to believe that the pelvis is defective in the conjugate, or too large in the transverse diameter at the floor of the bony pelvis.

For these reasons also, I have seldom seen it either practicable or advisable to use instruments with the intention either of bringing down the occiput or of favoring its rotation forwards; for it has in my hands proved either clearly impossible to effect this rectification, or, as the original conditions determining that error in mechanism were still operative, they have proved the maintenance of the rectification, even when it had been effected, impossible.

When so speaking, however, I mean to restrict myself to really difficult cases. I do not wish to assert that displacements of various kinds may not occur of such a nature as to retard labor when the head is very small or the pelvis very large, and which may at the same time be readily rectified. The case of half-brow, already recorded, is an example of the kind I mean, and the following abstract of a case is of a somewhat similar nature:—

Mrs. R. (II *a.*) fell in labor at full term on Monday, 8th December, 1873, the first symptom being rupture of the membranes at 6 p. m. This was followed by very slight pains for three hours, and then they increased in strength and in frequency. She was seen and examined at 10.30 p. m.; cervix found nearly dilated and quite soft and dilatable. The head presented, but was turned to the left side of the mother's pelvis, running so that the smaller fontanelle was somewhat posterior to the larger as well as on a higher level. But the child's head was strongly flexed towards the right shoulder, so that the left parietal bone presented, the right being immediately behind the symphysis pubis, and the sagittal suture passing close behind and below the pubic arch—the greater fontanelle being behind the upper third of the right descending pubic ramus. Only a small portion of the upper edge of the right parietal bone could thus be felt; though the left side of the head was pushed well down, so as to occupy the hollow of the sacrum, and present at the outlet. In this position the head remained for nearly an hour, without making any perceptible progress. I then introduced the two forefingers of the right hand, so as to seize the occiput, and pulling it downward and backwards, and then forwards, in the interval between the two pains I succeeded in almost completely undoing the right lateral obliquity, getting the right parietal to descend and the occiput forwards towards the symphysis pubis. I then held it there till a pain came on, and fixed the head on the perinæum. Other two pains completed the expulsion of the head. The child was small, imperfectly nourished, and still-born.

What I maintain is, that in such cases the rectification is so easy that they are not worth being called difficult cases. A few extra pains would almost invariably set them right without interference.

One of my chief reasons for bringing this subject under the notice of the Society is, that I feel very strongly convinced that Professor Leishman, in his work, which I have no hesitation in saying is by far the first text-book of Midwifery in the English language, recommends, more freely than I am inclined to believe is either proper or safe, methods of treatment which have for their object rectification of the position of the head in difficult occipito-posterior cases by means of levers, forceps etc. I am persuaded that in almost all cases in which the conditions are such as to determine a forward position of the forehead, attempts at rectification of the position will prove abortive. Holding these views, I cannot but regard with considerable dread the dissemination among students of the idea that levers and other instrumental means may be freely used to bring downwards and forwards the occiput.

One, however, feels little inclined to discuss questions involved in such difficulty as the rotation movement of the fœtal head, were it not for the injurious practical evils which too free interference with the mechanism is calculated to bring upon the unfortunates in whom these irregularities of presentation occur. While I have never met with what might be called a really difficult case of occipito-posterior position, in which there seemed to me the slighest chance of rectification by means either of hand or lever—and at one time of my practice I was wont to endeavor to rectify with the hand—on the other hand, I have failed to discover any injurious results from the application of forceps, even in cases which terminated as "face to the pubes," either in my own practice or in that of others which I have seen. Moreover, I do not think there is here so much risk to the perinæum as some writers would have us to believe. No doubt the perinæum is much distended. But almost all risk in such a case from rupture may, I think, be avoided by judicious management. When such a case turns up in my practice, I never leave the head to be completely delivered with the forceps on; but, after pulling it down with instruments so far as to allow me to get command of the occiput by the finger in the rectum, I then take off the blade and allow the pains, which have usually by this time become weak, to expel the head. But if the contractions are too weak, or if the perinæum seems to be specially in great danger, I endeavor to get the head over the perinæum in the absence of all uterine contraction, according to Von Ritgen's manipulation.

The forceps have always in my experience been capable of effecting delivery, and only in one instance did there result a vaginal tear worthy of the name, and even this was of the mucous membrane in the back wall, not involving either rectum or perinæum. It quickly, as I have said already, healed. Very severe cases of this presentation lead, no doubt, occasionally to the necessity for craniotomy. But luckily I have as yet not met with one which could not be overcome by the use of forceps.

Now, as to the reason why those occipito-posterior cases are so frequently defective in regard to their rotation. This is a question really difficult to answer.

Of course the great distance over which the occiput must glide forwards and the forehead backwards, is of itself sufficient to account for some proportion of the failures; the uterine action proving unequal to complete the task, even though the occiput gets well down. But the occiput not getting well down at first, as Dr. Uvedale West has pointed out, may also be to blame for some of the defective cases.

But, then, even in cases of "face to the pubes," the occiput gets ultimately so well down as to be the leading point in the completion of the labor when the mechanism fails, and yet it does not come forward.

I do not believe, with Leishman, that in those cases of rotation forwards of the occiput in posterior cases it is necessary, or is the fact, that the occiput requires to get down so far as to be placed within the antero-posterior line of the pelvis which passes horizontally through the apex of the ischial spine of the side towards which the occiput is directed. I am satisfied that many, if not all, of those cases which rotate, do so while the occipital protuberance is distinctly above the level of the corresponding spine of the ischium, and indeed that the occipital end of the cranial lever passes over the spine in its motion forwards. Of this I have again and again convinced myself by careful and prolonged observation while the mechanism of rotation forwards was taking place.

I consider that we are too much inclined to regard the fœtal head as an unyielding mass in dealing with the initial steps of this movement, and that more of the initial tendency of the head to move forwards is owing to its elastic nature and its capacity for getting moulded under the influence of the pains. The force, then, of the pains transmitted along the spinal column is expended most upon the occipital extremity of the plastic mass formed by the child's head; and as only in one direction, viz., forwards, can this mass make way, as it is surrounded by unyielding hard structures both posteriorly and laterally, it begins to bulge in the unresisted anterior direction, and thus a tendency is established which no doubt has the effect, in favorable circumstances, to a certain amount, of making the forehead rise somewhat. so as to leave more room for the parts under greatest tension to occupy. It is also to be remembered that the projection formed by the posterior parietal protuberance, in cases of occipito-posterior presentation, acts at much greater advantage in exerting a tendency for the hind head to glide forwards than it can effect in cases in which the occiput is towards a foramen ovale. At any rate, I have watched for hours occipito-posterior cases before they rotated, and have observed that the moulding process invariably preceded the marked, and often instantaneous, rotation of the head forwards.

I am inclined to believe that, though relative narrowing of the transverse diameter of the pelvis is no doubt a chief cause of those difficult occipito-posterior positions, general large size of the head is a most important factor; and that in consequence of this large size of the head the forehead gets so wedged into the pelvis anteriorly that its tendency to slacken and rotate backwards does not come into play. So soon as it fairly refuses to move backwards as it ought to do, the self-same plastic condition of the child's head, acting through the bregma, which is now the part exposed to least resistance, wedges it more and more into the unsupported space, and thus very quickly renders rotation of the forehead backwards, and consequently also rotation of the occiput forwards, impossible; so that the same plastic condition ot the head which affords the best explanation of the causation of the proper rotation forwards, likewise explains best the failure of that rotation when the head is large.

That, however, pelvic specialty of conformation has much to do with these irregular positions, the frequency with which they recur in the same woman very pointedly attests.

In one of my patients, I find her labors, which have been three, to be made up of two occipito-posterior and one face case; all were, however, comparatively easy. In another, there occurred three occipito-posterior and a brow. In a third patient, who had been confined four times, the presentations have run three occipito-posterior and a face.

I might, indeed, multiply such examples from my notes of cases, but those recorded are sufficient to prove that occipito-posterior positions are apt to repeat themselves in the same individual.

A few words now in closing, respecting the treatment of those difficult occipito-posterior cases, in which, from original uterine inertia, from exhaustion of the uterus from severity of pains, or from other causes, the forceps were needed to effect delivery; but in which, when the head had arrived at the outlet of the bony pelvis, the occiput rotated forwards.

Such cases are not to be confounded with cases of obstructed labor, in which the head is seized by forceps high up in the pelvis before it left the transverse diameter. They were all carefully diagnosed as cases of occiput to either sacro-iliac synchondrosis before instruments were applied. It does not, however, matter much, although any of them had been cases of original transverse position of the head; because even then the same difficulty from the rotation of the occiput fowards at the outlet, when in the grasp of the curved forceps, would be experienced; only in that case to a less degree, inasmuch as the angular divergence between the conjugate and either end of the transverse diameter is less than the angular distance between the anterior extremity of the conjugate and the posterior extremity of either of the oblique diameters, measured along the brim of the pelvis. In these cases we usually experience difficulty before the head is well down towards the floor of the pelvis; and I believe, not so much on account of the position, as on account of the general large size of the head, combined with the arrest of proper pains in a uterus that has been worn out in a difficult first stage. I repeat, the obstruction can rarely be completely explained by the position; because before this obstruction, due to defective rotation, can come into play, the vertex must have descended to the level of the lower edge of the body of the third piece of the sacrum, which I am satisfied it had not done in all my cases. Still, the backward direction of the posterior fontanelle has, no doubt, something to do in rendering these cases more troublesome than they would otherwise have proved. In two or three of those cases the heads were so large that the concavity of Simpson's long forceps was found incapable of embracing the whole of the head, and the instrument was found to enclose only a portion of it. From this there results a very marked tendency in the instrument to slip, which, in the first case of the kind I saw, very much puzzled me.

In all of those twenty cases, rotation took place wholly or partially at the outlet of the bony pelvis, and purely as a result of traction efforts. In no case did I find the slightest inconvenience when dealing with multiparæ, nor could I detect in these the least trace of injury to the soft parts. On the other hand, in operating on primiparæ, I have been frequently galled to find abrasions and other interruptions of continuity in the vaginal mucous membrane at its lower part. These vexed me much, and led, on more than one occasion to unnecessarily severe self-recrimination. The main cause of these abrasions, which at times amount to lacerations, and which, although they may be greatly diminished by care, and especially by operating slowly, are very difficult to avoid occasionally, is the rotation movement of the head at the outlet when in the grasp of the forceps, the soft parts at the same time being very tight. The result is this:

Suppose we have to deal with a case in which the occiput originally presented to the left and posteriorly; when the head is engaged in the outlet of the bony pelvis, it will be found to rotate under the influence of traction efforts alone; and as it does so, it throws the blades of the forceps, which were originally applied solely with reference to the pelvic cavity, and in such a manner that the line joining the central point of each fenestra would pass nearly transversely across the pelvis, into an oblique position. The left blade is now pushed upwards with considerable force towards the upper extremity and left side of the external genital fissure, whilst the right blade is turned downwards and made to project its sharp free border against the perinæum

Suppose now the pains are severe, or the traction efforts continued, we are ver apt to have the vagina injured in both the situations referred to—viz., in the regi of the left labium minus anteriorly on the left side, and posteriorly on the rig more or less to the right of the central line of the perinæum.

Besides these risks it is exceedingly important to notice that the blade, whic in relation to the occipital extremity of the fœtal head, is usually found to h been applied so as to receive the occipital tuberosity between the limbs of its fe tra. This part projects considerably between the limbs of the fenestra, and it req some care to free the occiput from between the limbs before the blade of the fo can be removed. If now, in our anxiety to avoid rupture from the awkward lique position into which the blades have got, we attempt to withdraw the lef too rashly, we are very apt to aggravate very much, if not occasion, the very tear on the left side, which we desire to prevent.

Such being the case, it has become my practice to remove the blades of the forceps so soon as the head is all but cleared of the bony pelvis, and *preventing recession* of the head by the assistance of passive pressure upon the forehead by the forefinger of the right hand in the anus, aided by gentle pressure on the abdomen by means of the left hand, to wait till the pains are able to complete the delivery, if that is at all possible—guardedly aiding the effect of such pains by Von Ritgen's manipulation. The head, which as yet has only partially rotated as a general rule, now gradually and slowly completes the rotation so as to bring the sagittal suture nearly to coincide with the antero-posterior mesial plane of the body, and at the same time the soft parts are slowly and safely dilated; but if the resistance of the perinæum is too great, or the uterine action completely in abeyance, the practitioner is obliged to introduce the forceps, and thereby effect delivery.

I have often thought that if one had always at hand a pair of straight forceps on these occasions, it would be advantageous to remove the curved blades when the head had been well pulled down into the outlet of the bony pelvis, and then, fixing it there by regulated pressure upon the abdomen, to apply straight instruments, and complete the delivery by their means. I have never been fortunate enough to have both sets of instruments with me at a case of this kind; but on the first opportunity that occurs to me, within easy reach of a short pair, I mean to try the effect. The short forceps could of course be allowed to rotate in any direction at will, without the slightest fear of bad results.

These cases, to my mind, form a considerable objection to the general rule—which, on the whole, is a good one—that one should accustom himself to the use of the long curved instruments only.

Another remark and I have done, and it is this, that I do not think that one is ever at liberty to undertake the instrumental charge of such a case without the aid of a skilled assistant to take charge of the chloroform at least. I have on more than one occasion experienced considerable discomfort and anxiety from having no other assistance than that afforded by a flurried and half-educated nurse.

I conclude by formulating the chief practical points I have endeavored to maintain in this paper, and these are as follow:—

1. In occipito-posterior positions, if these are persistent, we may safely assume that we have some pelvic peculiarity or disproportionately large head to deal with, and, as a general rule, all attempts at artificial rectification of the position of the head will prove abortive, and are even dangerous if attempted to be effected by means of levers, forceps, etc.

2. The only exception is when temporary delay is occasioned from accidental displacement of a small head; in which case one has the alternative of waiting till the normal powers of parturition effect delivery, or of facilitating that event by timely rectification of the head by the hand.

3. In cases which threaten to end as "face to pubes," and are at the same time decidedly difficult, it is best to pull the head through cautiously, and to abstain from every attempt at rectification of the head—special care being taken to guard the perinæum, as the occiput, when passing over it, greatly distends it.

4. In cases of obstructed occipito-posterior positions in which the rotation takes place at the outlet of the bony pelvis, while the head is in the grasp of the curved forceps, there is very great danger, in the case of primiparæ, of the forceps

lacerating the soft parts, on account of the oblique position into which they are thrown.

5. To prevent this accident, either, 1st, the blades ought to be cautiously removed, the head fixed in position, and the uterus allowed to finish the expulsion of the head; or, 2d, the curved instruments may be reapplied, adjusted to the altered relation of parts; or, 3d, a straight short pair may be applied, and the further advance of the head thereby secured.

Weight of Infants at Birth.

Dr. A. G. Smythe, of Baldwin, Miss., writes to the *Southern Medical Record*, August, 1874:—

From a long, and I might say, an extensive country practice and observation, I have come to the conclusion that children born in the rural districts of America are much heavier as a general thing than those born in European cities, or rather in the maternity hospitals of the crowded cities of Great Britain and the continent.

True it is, that in my practice there has not been a regular record kept, nor have all the children born in my care been weighed; but a very large majority have been carefully weighed and noted by myself. All the very large, as well as the very small, children were carefully weighed, and the conclusion is, that one-third of the number weighed were above seven pounds, that one-fifth weighed eight pounds, and that one-seventh weighed ten pounds and upward. Only one, in two thousand and four hundred, weighed four pounds; all others were above five pounds; one weighed sixteen, one fifteen, two thirteen, and four weighed twelve and a half each; one-third of the number probably weighed less than seven pounds, say an average of six pounds. Upon summing up, I find that the foregoing estimation will make an average of seven pounds, two ounces, five drachms and a fraction, which has fallen below what I had generally supposed was the average weight of American children at birth.

On Maternal Impressions.

Mr. J. Clapperton, L. R. C. P. Ed., at the British Medical Association, read a paper on the effects produced upon the fœtus by fright experienced by the mother in the early months of pregnancy. In a large proportion of the cases, the object of fright was a natural object, and the results of the fright were various. In some, a nævus, or mother's mark, bearing a striking resemblance to the object which excited the mother's alarm, was found upon the skin of the fœtus; in others, a graver impression was made, and there was a serious modification or arrest of development induced. In order, however, for this to take place, a certain progress only must have been made by the embryo; a little further development protected it from any very grave modification. In some instances, the changes produced by fright were recurrent in the same individual, the object being different in the separate cases. Mr. Clapperton had met with one of these recurrent cases; in the first instance, the object was a rat, in the second a dog. Other observers had had similar experiences. The actual means by which such modification was produced were not quite determined on, as there had not yet been demonstrated any nervous connection between the mother and her child. Further research, Mr. Clapperton thought, might succeed in demonstrating some nerve-communication to exist. After showing that there were some grounds for supposing that these impressions upon the mother affecting the embryo were not confined to human beings, Mr. Clapperton discussed the importance of these malformations from a diagnostic point of view, and stated from his own experience the puzzling character of the presentation in these cases. The paper was illustrated by a specimen.

Dr. Goyder stated that he had formerly been opposed to the influence of maternal impressions, until a circumstance in his own experience led to changing his opinion. He amputated the finger of a man whose daughter, then one month pregnant, assisted at the operation; she expressed at the time great abhorrence. On her confinement, the corresponding finger was absent in the child.

Dr. Drury mentioned a similar case, where a patient, four months pregnant, when larking with her husband, let fall the lid of the flour-bin on her thumb. When the child was born, the thumb was hanging by a thin piece of skin. In another case there was a secondary thumb with a distinct articulation. The attention of the patient had been directed to the child of a relative born with a supernumerary thumb, where an abscess had formed, which gave the patient a shock.

Mr. Cadge thought the subject one of deep interest and importance. The first thing to consider was, whether there was any real connection between the maternal impression and the results. Sir William Lawrence had written a paper in the *Medico-Chirurgical Transactions*, ridiculing the subject altogether. Many children were born with hare lip, and yet there was nothing to account for it. In the lower animals deformities occurred, and yet there was no mental reasoning. There were malformations in the vegetable kingdom, and yet there was no mind to receive an impression. The vast accumulation of reported cases outweighed those coincidences. Dr. Goyder had stated that he was not a believer until he had met with one vivid case; he must have met with many malformations without any reason assigned for them. He (Mr. Cadge) did not agree with Sir William Lawrence; the subject could not be disregarded. He could quote cases which would weigh on the other side; a few cases might be mere coincidences, but individual experience carried the conviction that there must be some connection between the impression and the result. The region of pure speculation would not explain it physiologically.

Dr. Fothergill thought the paper of practical value if not of great practical interest. The accumulated evidence showed that there was something in the question. We were not sufficiently familiar with the mental process in animals. In his own case, his mother had been afraid that he (Dr. Fothergill) would be born with one arm off. She was not impressionable, but still she believed it; however, it did not prove correct. As regarded the question of development, Mr. Clapperton had stated that, after a certain time, the development was not arrested. This was a point of interest, as we might satisfy the mother's mind.

Dr. Edis thought there was much that was interesting in the subject, but the fallacies connected with it were numerous. Many a mother imagined her child would be born with a certain mark or deformity, when a perfectly healthy and natural child resulted; many a malformation, nævus, or other mark, existed in children, where the mother could not ascribe it to any well-marked cause. If all the cases were recorded where the "impression" had given rise to the expression that some malformation would certainly ensue, and yet none had occurred, they would be found to far outweigh the instances where the result verified the impression.

On Decollation as a Mode of Delivery in Shoulder Presentation.

Dr. Fred'k W. Wright, read a paper with this title before the British Medical Association.

After referring briefly to the opinions entertained by numerous writers on this subject, the author recorded his method of procedure, which consists in passing a simple blunt hook, pierced with an eye carrying a piece of twine or tape, to which are attached half a dozen thin wires made of copper, over the fœtal neck. The presenting fœtal arm is, meanwhile, seized by the right hand of the accoucheur, and considerable traction made upon it until the left fingers are passed over the neck, when the blunt hook is inserted, and traction made so as to enable the operator to withdraw the twine. A leash of copper wire is now attached to this, and traction made at the end of the twine, thus drawing it out of the vagina, while the wire will be drawn in and over the child's neck. By pulling the opposite end of this wire-saw rapidly backwards and forwards, with a saw-like motion, the head of the fœtus may be severed in five seconds. The body is then extracted by the presenting arm; or, if this have been amputated to give room to operate, the body may be readily extracted by means of the crotchet hooked over the clavicle or over one of the ribs. If the decollation be made close to the shoulder, there will be less difficulty in delivering the head, as the whole length of the neck, with its firm groundwork of vertebræ, thus left attached to the head, makes an excellent hold for appropriate instruments. The head is then fixed in the pelvis by external pressure, the neck if possible being made to present; this is then seized by a pair of strong forceps with horned teeth on the inner aspect of both blades, like craniotomy-forceps, and traction made upon it till the head escape externally. Should the neck give way under the efforts at traction, the head may be delivered by (*a*) the forceps, (*b*) the crotchet hooked into the lower jaw, or (*c*) the posterior fontanelle may be perforated and the crotchet introduced within the cranium, and traction made upon one of the cranial bones. The author thus briefly summed up the comparative advantages of the two operations—evisceration and decollation. Evisceration is not generally completed under an hour; decollation is accomplished in a few minutes. In the former, anæsthesia has to be kept up for an hour or more; in the latter, it is either not required at all, or not required for more than a few minutes. In the former, the soft parts of the mother are liable to be lacerated by removal of the bony covering of the viscera; in the latter, the liability stands at zero. In evisceration, the operation is prolonged, bloody, repulsive, and abominable to the last degree; in decollation, the operation is speedy, is not bloody, and is not repulsive in the least degree. In the former, the instruments required are numerous and complicated as well as dangerous; in the latter, the instruments are never more than three, viz., the harmless blunt hook, the simple wire saw, and the toothed forceps for delivery of the head. In the former, there is no reduction of bulk, delivering a fœtus doubled in itself, even though deprived of its viscera; in the latter, the bulk is not increased. Perforation and evisceration are not always sufficient to bring relief to the mother; decollation never fails to bring instant relief and safety to the mother, and is unquestionably simpler, safer, and speedier than evisceration.

Experimental Researches on the Movements of the Uterus.

The Medical *Press and Circular* of August 19, 1874, says:—

In an analysis of German works, Dr. PUECH publishes the principal results of the experiments of Oser and Schlesinger as to the influence of suppression of respiration and arrest of circulation on the movements of the uterus, and on the rôle of the nervous system in these phenomena. The experiments were performed on young rabbits not yet pregnant, but capable of becoming so.

In these animals the uterus is immobile under regular respiration, but is subject to spontaneous movement after gestation.

The following are the chief conclusions:—

1. The suspension of respiration provokes, after ten to thirty seconds, general contractions of the uterus. So soon as respiration is re-established the old order returns.

2. Compression of the aorta, produces, at the end of 80-100 seconds, a general contraction of the uterus. Compression of the aorta in post-partum hæmorrhage is thus perfectly justifiable.

3. The contractions of the uterus which supervene a few seconds after arrest of respiration may not be considered as a peripheric irritation of the organ produced by the special action of the venous blood. If arrest of respiration be combined with compression of the aorta, contractions supervene at the end of 10-30 seconds, and not slowly as after simple compression of the aorta.

These phenomena are always influenced by troubles of the nerve centre.

4. Copious hæmorrhages determine also, at the end of several seconds, generalized contractions of the womb, explicable solely by irritation of the nerve centres. To refute the objection that anæmia may be the cause of these contractions, the aorta or vena cava were compressed as if to prevent hæmorrhage, which did not occur until 15 seconds after section of the carotids, when the uterus was strongly contracted.

5. The obliteration of the four cerebral arteries provoked likewise, after several seconds, generalized uterine contractions. Ligatures applied so as to lose as little blood as possible produced a result identical with that of suspension of respiration.

6. After section of the spinal marrow contractions of the uterus did not supervene more speedily on suspending respiration than on compressing the aorta: hæmorrhage and occlusion of the cerebral arteries were now without effect on the womb.

What now necessarily follows from these experiments is the fact that if serious interference with the cerebral circulation caused uterine contraction, the lack of communication between the uterus and the brain should suppress these contractions; every hæmorrhage too, no matter how great, should remain without effect.

Treatment of Prolapse of the Umbilical Cord.

Dr. G. J. **Engelmann** observes in the *American Journal of Obstetrics*, August, 1874:—

That there are cases of prolapse in which it is not desirable to leave the progress of the labor wholly to the powers of nature—cases in which interference is necessary, yet no indications for operation exist. Now, the first and most simple assistance that can be rendered is to properly direct the patient's voluntary efforts; either, as the state of the case demands, keeping her quietly in one position, refraining from pressure with the abdominal muscles, or, when labor is far advanced, to encourage her to aid the passage of the head by the exertion of all her energies. 1. Postural treatment. Equally simple, and on that account neglected probably in clinical teaching as well as in the text-books, is the treatment by position, which is a valuable aid to the practitioner. It consists in placing the patient on the side opposite to that on which the funis has prolapsed, so that the cord may be relieved from pressure, when it may perhaps glide back into the cavity of the womb. When the prolapse takes place in one or the other of the sacro-iliac fossæ, the patient should be placed on her hands and knees in the knee-elbow position. This position, however, is unfortunately very tiresome, and if too fatiguing, the patient must be placed in the corresponding side position, on the left side if the cord has prolapsed into th right sacro-iliac fossa. Dr. Engelmann has achieved good results by this method. Position alone, as Thomas some time ago remarked, will rarely if ever cause the return of the cord without the aid of manipulation, unless the bag of water is unbroken; and even then it may not. 2. Reposition of the cord. The carrying back of the prolapsed loop into the cavity of the womb beyond the presenting part is a treatment that has been given up as ineffective by some, whilst it is most warmly recommended by others. In Engelmann's cases reposition was accomplished in only seven of the eleven cases in which it was attempted; and though apparently successful in these seven cases, the cord not reappearing, only four of the children were saved. In the out-door department the results were but little better, reposition of the prolapsed loop having been practised in thirty-two cases, and, notwithstanding that the operation seemed to have succeeded in twenty-six of these, not more than sixteen children were saved—in fact, by reposition of the cord alone only thirteen, as delivery was hastened by operation in three other cases. The life of the child was saved in fifty per cent. of the cases in which reposition was apparently successful, and in forty per cent. of all the cases in which it was attempted; and as it was only resorted to in the most favorable cases, with well-pulsating cord and normal pelvis, the plan does not seem to afford much encouragement. Reposition is justifiable in many cases, but it has its strictly defined indications. With few exceptions, it must be confined to cases of prolapse with head presentations, as it is only with the rounded and resistant head that, when the loop has been carried back beyond its greatest circumference, the uterus can by its contraction prevent the immediate return of the prolapse. Not unfrequently a life is lost by too obstinate adherence to this method of treatment, the continued pressure and traction required, proving fatal to the child: and in the same way, even when apparently successful, pressure at a higher point may have arrested the circulation in it. It should only be undertaken when the os is so far dilated that the escape of the waters is no longer to be feared, that, in case of necessity, delivery by forceps or turning can be immediately resorted to. The best instrument for the purpose of reposition is Robertson's funis replacer, and when apparently accomplished the fœtal heart must be closely observed, as it is by this means alone that it can be ascertained that it has been really effected; the fœtal pulse becoming strong and regular, continuing so after several pains. 3. Anæsthesia. The use of chloroform was frequently resorted to and proved a valuable adjuvant in achieving reposition of the cord. 4. Forceps. The forceps was resorted to about as often as the reposition of the cord. In fifteen of the thirty cases in which it was applied the child was saved. 5. Extraction by the feet. Extraction by the feet, simply not following version, was practiced in sixty-five cases, in forty-seven of which (72.3 per cent.) a living child was developed. The success naturally depends upon the favorable prognosis offered by breech-first labors, in which alone it can be resorted to, and the treatment is mainly a postural one. Extraction by the feet was practiced in fourteen of the lying-in house cases, and in only one was the child delivered dead, putrid—a case which should justly be excluded. The results were less favorable in the out-door cases, the accoucheur not unfrequently being called in too late. The patient should be so placed that a return of the presenting loop may be facilitated, all muscular strain must be avoided, the membranes must, if at all possible, be preserved intact until the os is sufficiently dilated, and when this is the case, the parts being yielding, we must not wait for threatened signs on the part of the fœtal pulse, but at once deliver by version. The operation which was most frequently resorted to and which proved, comparatively speaking, most successful, was turning by the feet, immediately followed by extraction. Of the one hundred and twenty-five cases so operated on, seventy-two were favorable, 57.6 per cent. of the children were saved; and this result holds good not only for transverse and shoulder presentations, but also for head presentations. 7. Cephalotripsy. Craniotomy can certainly not be classed among the operations called for by prolapse of the funis, yet Engelmann makes mention of this operation, as it was so often necessitated for the preservation of the mother, and as the large number of these operations, twenty-five amongst three hundred and sixty-five deliveries, complicated with prolapse of the cord, most forcibly proves the frequency of the highly contracted and the distorted pelvis as cause of the prolapse.

Post-partum Rigors.

The *Irish Hospital Gazette* remarks:—

There have been many explanations given of the cause of this rigor, agreeing only in not considering it pathological, but physiological.

Pfannkuch (*Archiv. f. Gyn.* Band vi. Heft 2), after noticing the principal of these, as, for instance, the sudden loss of blood; the sudden withdrawal of the blood from the surface, caused by the emptying of the uterus, and consequent lessening of the pressure to which the great vessels have been subjected; the exposure of the woman during the latter part of labor, or her lying in sheets damp with the escape of the waters; and, after giving reasons for being dissatisfied with them all, adds the following explanation of his own: The experiments of Wurster have shown that the temperature of the fœtus in utero is at least 0°.9 higher than that of the mother. It follows from this that every pregnant woman has a second centre of warmth in her uterus; but her own temperature is not thereby increased, so she must be producing less warmth than if not pregnant. The moment the child is born, and this centre of warmth removed, there is at once a disproportion between the amount of heat produced and that given off; the effort to bring about an equilibrium is what causes the rigor. The intestines are, it is well known, most susceptible to heat and cold, and it is from their immediate vicinity that this source of heat is removed. The uterus, too, having sunk down towards the pelvis, the intestines come to touch the abdominal walls, which are often very much thinned, and thereby suffer a further loss of heat, which produces a powerful influence on the nerve centres.

This view is further supported by the fact that if the child dies during pregnancy, the mother is often subject to rigors, and complains of a feeling of coldness in the abdomen. It follows at once from this, that, if the view that Pfannkuch takes is correct, there can in such cases be no rigor following the birth of the child. In the few cases of this sort that he has had since embracing the above theory, there was no such rigor; and he thinks that should a rigor occur under such circumstances we should give a guarded prognosis, the cause of such being probably pathological.

Chloroform in Placenta-Prævia and Post-Partum Hemmorhage.

Dr. P. S. **Verdery**, of Chapel Hill, Ga., writes to the *Atlanta Medical and Surgical Journal*, November, 1874:—

It is the fortune of very many of your readers, like myself, to be called to practice our vocation in obscure, country districts, far remote from the sources of supply of medicines and instruments, upon a people blest with but precious little of this world's pelf, and with scanty opportunities of consultation or professional assistance. Under such conditions, he who adds to the resources at our command for the successful management of emergencies in practice, by the use of means readily attainable, may in some sort be esteemed a public benefactor. It is in the hope that I might do something in this direction, for the benefit of the brethren, that I send you the notes of the following case:

Mrs. K. A., æt. 38, mother of two children, was taken in labor on the night of August 9th, 1871. When I reached the house, I found the patient in the first stage of her labor, the pains recurring at intervals of perhaps thirty minutes. The rain was pouring down in torrents, the humble cabin in complete darkness, the fire having been extinguished by the rain. Her only attendant was her mother, an old woman of seventy winters. Groping my way in the rain, out of doors, I fortunately stumbled upon a pine knot and an axe, with which to start up the fire and enable me the better to view the situation.

Upon the investigation, I discovered that at the recurrence of each pain there was a slight discharge of blood, the membranes being yet unbroken. The os uteri was turned towards the sacrum, and too high to be reached with the index finger. As the flow of blood was slight, I waited an hour, and repeating the examination, found the os within reach and dilated to the full size of a silver half-dollar. No part of the child presented, but the os seemed plugged completely with a soft spongy substance. The hemorrhage in the meantime had become considerable, though the pains had not materially increased in force or frequency. Though never having seen a case of the kind before, I was satisfied that it was placenta-prævia, and being without help or resources, I was somewhat at a loss what to do. The os having now become soft and dilatable, and the hemmorrhage alarming, I determined to tampon the vagina closely and administer ergot to hasten the labor to a close. Having plugged the vagina closely with the fragments of an old bed quilt, the only available material, I administered wine of ergot until my supply of an ounce and a half was exhausted.

By this time the symptoms indicated that the hemorrhage was telling seriously upon her strength. Although there was no visible flow, it was but too evident that internal hemorrhage was exhausting her, in spite of the tampon. I administered brandy and laudanum, and, removing the tampon, found the vagina enormously distended by clot. As I broke up and removed the clot, the liquid blood flowed forth in a torrent. It seemed that my patient was gone. I immediately elevated the foot of the bed, to throw the remaining blood to the brain, and making a hasty and anxious touch, found half of the placenta in the vagina, and trusted that a few more pains would expel it. I bethought me now of some external applications to stimulate uterine contraction. Ice was not to be thought of in the remote cabin; I called for mustard, there was none; then for vinegar, they had none; then for cold water, but the water from a distant spring in mid-summer could scarcely be esteemed cold, and its application was without effect. Remembering a vial of chloroform in my saddle-bags, I poured its contents into a cup, and baring the abdomen, I dashed it freely over the surface and immediately covered the abdomen with a folded flannel. The effect seemed magical; my patient, from her loss of blood, was so weak and faint that she could scarcely see, and could with difficulty be aroused to consciousness; she rallied at once under the local schock and strong counter-irritation, and what is more, the uterus instantly contracted and expelled a child with a single pain. Ligating the cord and handing the child to the nurse, I examined for the placenta, when another pain coming on, and the uterus strongly contracting, both a second child and the double placenta were at once expelled, the uterus maintaining its firm contraction.

So much for the external application of chloroform. Since the above experience with the remedy, I have given it trial in several ceses of post-partum hemorrhage, and with uniform success; in more than one case where other and approved remedies had failed. It seems to me that the action of chloroform is two-fold: firstly, refrigerant by its rapid evaporation, and secondly, excitant by its burning heat. The rapid transition from cold to heat, and *vice versa*, usually arouses strong uterine contractions. Whatever may be the *rationale*, of one thing I am quite sure, *i. e.*, it is a good remedy in such emergencies.

Disease of the Heart a Cause of Abortion and Premature Confinement.

The *Lancet*, November 7, 1874, remarks:

The connection which may exist between disease of the heart and pregnancy has, within the last few years, attracted the attention of some French medical men. In 1872, Dr. MICHEL PETER, in a clinical lecture published in *L'Union Médicale*, showed that very grave accidents might supervene in pregnant women affected with mitral insufficiency. Shortly after, Dr. Ollivier, in various communications made to the Société de Biologie and in a memoir published in the *Archives de Médecine*, proved that the pregnant condition might determine passing or permanent disturbance in the nutrition of the heart, and give rise to the production of certain chronic maladies of that organ. More recently (in October, 1873) M. Budin, house-surgeon to one of the Paris hospitals, published a case in the *Progrès Médical* which received much attention. It was that of a woman, aged forty years, affected with mitral insufficiency and dry pericarditis in the situation of the base, and attended by phenomena of symptomatic angina pectoris. She had had seventeen childbirths. In the first fourteen pregnancies the woman either reached the ninth month safely or miscarried in the course of the second month. Until she conceived for the fifteenth time she had never suffered from illness, never had an attack of articular rheumatism, and never felt palpitation. Towards the sixth week of this fifteenth pregnancy she was affected with violent fits of suffocation, which were so very intense that she thought every time that she was going to die. Each of the fits was ushered in by cardiac palpitation. These attacks of dyspnœa increased in intensity until miscarriage took place, and then they ceased immediately. For the sixteenth time she became pregnant. Again the palpitation and dyspnœa made their appearance, and were even more frequent than before. The seventeenth pregnancy was marked by the same phenomena, and in both cases they disappeared only on the occurrence of miscarriage. This event took place respectively at five months and a half and six months, the mother giving birth both times to a dead fœtus. The last miscarriage took place in March, 1869. The beatings of the heart, which had been very violent during the pregnancy, diminished considerably after the miscarriage, though they did not cease entirely, when the husband was taken ill, and died in the month of April following. The heart symptoms then became more intense, and the woman entered the wards of La Pitié, where she stayed four months. Her health was almost entirely restored when, in 1873, she was again taken ill, and returned to the hospital for a few weeks. "In presence of these facts, and of others which will be published hereafter," wrote

M. Budin, "the question may be asked whether cardiac affections do not in turn exert a reciprocal action on the development of pregnancy, and whether in certain cases, doubtless of rare occurrence, they are not the cause of abortion and of premature confinement."

Since then a certain number of new facts have confirmed the view thus expressed in the *Progrès Médical.* In March, 1874, *La France Médicale* published the case of a woman who had enjoyed good health until the age of thirty, and had three times been safely confined at term. She then began to suffer from palpitation, dyspnœa, &c., became twice pregnant, and miscarried both times at the third month of pregnancy. The cause of the heart disease was stricture of the aorta.

Still more recently a similar case was communicated to the Société Anatomique of Paris, and in the discussion which followed Dr. Pinard related that during his house-surgeonship at the Lying-in Hospital he had observed two cases in which no cause had been discovered for the occurrence of premature childbirth but the existence of heart disease.

To the numerous causes of abortion and premature confinement indicated by classical writers it will be very likely necessary to add henceforth the one mentioned by M. Budin—namely, disease of the heart. Moreover, the expulsion of the fœtus is but the consequence, and, it may be said, occasionally the favourable termination, of the grave accidents on which Dr. Peter has insisted in his lectures.

II. DISEASES OF WOMEN.

Ergotin in Uterine Fibroid.

The *Chicago Medical Journal,* November, 1874, states that at a late Society meeting, Dr. EMMONS read a report of a case of uterine interstitial fibroid tumor, treated hypodermically by ergotin; of which the following is an abstract:—

Mrs. X., married, age 45, American, the mother of three children, the youngest of whom is eleven years of age, was in good health till the time of her last parturition, which proved to be a difficult one, followed by hour-glass contractions, and permanent impairment of health. Two years ago, a noticeable change had gradually taken place: menstruation had become copious and more prolonged than usual, requiring patient to keep the bed for ten days at a time: she was emaciated, had sciatica and chronic laryngitis. At the time of Dr. Emmons' first visit—December, 1873—in addition to above symptoms, the patient had become so exsanguinous as almost to be in a state of syncope, from constant flooding—there was pain in the uterus and chest—loss of appetite and sleep. There was abdominal tenderness, particularly over the region of the right ovary. The uterus was enlarged, extending up to within two inches of the umbilicus, and a little higher upon the right than left side. Digital examination, per vaginam, revealed anteversion, the os low down against rectum, and dilated to about one-half inch. A metallic sound could be introduced (with strong curve towards anterior wall of abdomen) to a depth of six and one-half inches; a flexible catheter passed a half inch farther. There was a hard tumor commencing at middle of the neck of the uterus, attached to its anterior wall, and extending to the fundus uteri.

Treatment: directed a tonic of iron and quinine, and

℞.	Ergotin (Bonjeau),	ʒj.
	Aquæ Destil.,	fl.℥j.
	Glycerini,	fl.ʒj.

M. Sig. Twelve drops, daily: hypodermically.

Improvement was immediate, as shown by the subsidence of pain and hemorrhage. At the end of fifty-nine days, the patient was much better, pulse fuller, appetite better; sleeps well and without anodynes, and able to sit up two hours daily; less abdominal tenderness, but no diminution in size of tumor. The dose of ergotin was increased so as to get about four minims per dose, and continued for three weeks without any particular change in the patient's condition.

The use of Squibb's aqueous solution of ergot, prepared for me so as to get one grain of the drug to the minim, giving twenty minims daily by hypodermic injection over the deltoid, was most satisfactory. Examination twelve days after this change of medicine, revealed the tumor subsided to four and one-half inches below umbilicus. The cavity of uterus measured about five and one-half inches in depth. Patient able to ride out daily; has gained eighteen pounds during the past fortnight, is entirely free from pain; last menstruation normal in quantity, and lasted four days. At another examination in June, the fibroid had still farther diminished in size: the uterine cavity measured four inches in depth. Patient complained at this time of a quite free watery discharge from the vagina. A month later, during which time the treatment had been continued, the uterine cavity was found to measure three and one-half inches in depth, watery discharge still present. The treatment was suspended for ten days and then resumed. In August the uterus had regained its normal size, and no tumor remained. The continued daily hypodermic injection, during a period of 156 days, of the twenty minims of a preparation containing Squibb's aqueous solution of ergot, had the effect of gradually reducing the fibroid till hardly a trace of it could be found. There was no particular inconvenience or irritation produced at the points of puncture, especially after laying aside the use of the alcoholic preparation of ergotin.

Dr. Emmons gave some quotations regarding the action of ergot from the results of an experimental investigation by Dr. Warnich, and from recent works of other authorities, such as Drs. Paul Vogt, Ritchie, Handelin, and C. Boldt. *In true interstitial fibroid of the uterus, treated hypodermically with the aqueous solution of ergot, we may expect in the large majority of cases, eminently more satisfactory results than by any other mode of treatment, or by operation.*

Lacerations of the Cervix Uteri.

Dr. T. A. Emmett, of New York, writes of this injury in the *American Journal of Obstetrics*, November, 1874:—

Lacerations of the cervix are of frequent occurrence, and are seldom recognized, even at the time of labor. The tissues are then so soft that, without the rent has passed beyond the cervix into the vaginal and connective tissues, it can scarcely be detected by a mere digital examination, and will escape observation unless an unusual amount of hemorrhage should exist as a consequence.

Lacerations in the median line are the most frequent, while through the anterior lip they are of more common occurrence than in the posterior one. When in the median line, and confined to the cervix, these lacerations generally heal rapidly, leaving scarcely a cicatrical line to mark their course. This is due to the fact that with the necessary recumbent position of the patient, which is enforced for some time after labor, the raw surfaces are kept in close contact by the pressure of the lateral walls of the vagina, until they have become firmly united. We have, therefore, no serious consequences likely to follow the accident, unless the rent passes beyond the cervix. If through the anterior lip into the vesico-vaginal septum, the tear may extend even to the neck of the bladder, producing at first an extensive fistula. But as no sloughing or loss of tissue has taken place, and the edges lie in contact, the divided septum rapidly unites, from before backward toward the uterus. The laceration through the cervix closes as readily from the vaginal surface toward the bottom of the fissure, and union with the line through the septum may in a short time reunite the entire tract of laceration. This will frequently be the result if attention has been paid to cleanliness, and if a phosphatic deposit from the urine on the raw surfaces has been prevented by the frequent use of injections of tepid water into the vagina. As a rule, however, we will have one of two forms of vesical fistula remaining as a consequence of the injury.

The most frequent result is for the fissure through the cervix to close entirely, with some portion of the laceration in the vaginal septum, leaving a small vesico-vaginal fistula in front and against the anterior lip of the uterus. Occasionally the entire line of laceration through the septum will unite with that through the cervix down to the angle at the bottom of the fissure, but leaving here a sinus along which the urine escapes from the bladder into the uterine canal at or above the internal os.

Lacerations through the posterior lips unite as readily, and the occurrence may not be suspected unless the fissure should have extended sufficiently into the posterior cul-de-sac to set up an unexpected attack of inflammation. When cellulitis occurs at this point and from this cause, we always have a most intractable form of retroversion to deal with afterward. If extensive, the cicatricial band, felt as a cord, will contract, and so shorten the cul-de-sac as to render it impossible to adopt any instrument, for the purpose of restoring the uterus to its natural position, until a surgical procedure has been resorted to for its removal. The history of these cases would indicate that the occurrence of the injury was due to the presentation of the vertex towards the sacrum.

In practice, we have to deal chiefly with the consequences of lateral laceration, and the effects are more marked when the lesion is complete than when confined to either side. Partial lateral laceration of the cervix will sometimes partly fill up by granulations, especially if the injury was confined to one side, but never so perfectly that the line cannot be easily recognized. Whenever the rent has extended to the vaginal junction, or beyond, there will exist a tendency for the tissues to roll out, from within the uterine canal, so soon as the female assumes the upright position. The posterior lip of the cervix naturally catches on the posterior vaginal wall, as the uterus after a recent delivery is still larger than natural, and low in the pelvis from its increased weight. So soon as the flaps formed by the laceration are once separated, their direction of divergency becomes increased by the anterior lip being crowded forward in the axis of the vagina, towards its outlet, in the direction presenting the least resistance, while the same force naturally crowds the posterior lip backward into the cul-de-sac. From thus forcing the flaps apart, a source of irritation is at once established, which arrests the involution of the organ, and the angle of laceration soon becomes the seat or starting-point of an erosion which gradually extends over the everted surfaces. With the increased size and additional weight of the uterus from congestion, the tissues gradually roll out to the internal os. The whole organ being in a state of fatty degeneration, and the tissues of the neck soft, these flaps flatten against the posterior wall of the vagina or floor of the pelvis, so that all appearance of laceration becomes lost. So perfect is the deception that it is frequently impossible, for any one not familiar with the condition, to recognize the existence of a laceration by an ocular examination alone. When the laceration has been complete, but confined to one side, the rolling out is not so extensive, nor is the apparent size of the cervix so large, as in the previous condition, but it is as often difficult at first sight to detect the injury. Naturally a partial obliquity of the uterus in the pelvis is produced by crowding the cervix towards the uninjured side, that this surface and the flattened lacerated portion may present a common plane to the posterior wall of the vagina on which it rests. This portion of the uterus presents a reflexion of vaginal tissue over a part of its body, just above the terminating point of the laceration, so that in appearance the length of cervix on that side is equal to the uninjured portion. The apparent os is always more patulous than in health, and this condition is readily accounted for from the evident existence of disease within the uterine canal. Moreover, the deception is still maintained by the passage of the sound as it is introduced within the canal at some distance from the apparent edge of the cervix. In fact, it enters and follows the oblique course of the laceration, from the vaginal junction, but gives no evidence of the true position of the uterus in the pelvis, although the sound passes in the axis of the vagina. So deceptive is the condition, that I have been frequently consulted as to the propriety of amputating an enlarged or elongated cervix when I have readily demonstrated the true condition, and proved that, were a small portion only of the apparent enlargement removed, the peritoneal cavity would be necessarily opened. The cervix is never so large as it seems to be, and the line of junction with the vagina is equally deceptive, for as the uterus prolapses from increased weight, it carries with it a reflexion of vaginal tissue. It is a wise procedure, in any doubtful case, to place the patient for examination on her knees and elbows when, on the introduction of the speculum, by atmospheric distention of the vagina, and by the action of gravity on the uterus, the true line of junction with the vagina will be well marked. In a case of laceration on one side, extending to or beyond the vaginal junction, the fissure can be detected generally in this position without difficulty, as by the weight of the uterus its axis in the pelvis will be brought in line to correspond with that of the vagina. Lateral lacerations of the cervix are more frequently found after instrumental delivery, than as the result of labor which has been terminated by the efforts of nature alone, and yet this may be but a coincidence.

After the reception of this injury, and consequently a "bad getting-up" from her confinement, the female will at length consult her physician in consequence of her inability to stand with comfort, complaining of a continual backache, with pains down her limbs, a profuse cervical leucorrhœa, and, as a rule, hemorrhagic and frequent menstruation. The probabilities are that she will be faithfully treated for both ulceration and prolapsus, in mistaking the effect for the cause. The "ulceration," which will seem to be the most prominent feature in the case, will likely baffle all attempts to heal it, or if any improvement should take place in her condition, after a sufficient rest in the recumbent position, a relapse will follow again and again after attempting to exercise. We find frequent laceration of the perineum in these cases, and as the vagina was unable to regain its natural size after delivery, from the then existing prolapse of the uterus, the canal becomes still more dilated, as the organ, from a want of proper support, continues to advance as a wedge towards the vaginal outlet. The necessity for correcting the position of the uterus is apparent, yet to give adequate support to the organ, any instrument used must necessarily be so large as to allow the vaginal walls to prolapse, so as to obstruct the circulation, and by thus increasing the weight of the uterus add to the difficulty. Such a case will pass from one position to another, until eventually the leucorrhœa will cease, and the profuse menstruation diminish, as the surfaces become cicatricial in character from the frequent use of the nitrate of silver or from the application of caustics. But she becomes gradually a confirmed invalid, the hypertrophy remains, and with the impairment of her general health, the nervous element becomes most prominent.

When the case has been left more to the reparative powers of nature, the mucous follicles gradually undergo cystic degeneration, and these little bodies can be felt as a number of shot embedded in countless numbers within the tissues of the cervix. These become distended, rupture, and gradually empty themselves, by which the follicles are destroyed as the cavities disappear by contraction. At first the cervix is rather hypertrophied from the filling of these cysts, and as the inflammation and enlargement of the follicles extends within the canal, the rolling out of the mucous membrane is increased. The cervix, however, and frequently the uterus itself, gradually become atrophied from the pressure exerted at first by the enlargement of the cysts, and afterward by the contraction following their rupture. Occasionally the atrophy is confined entirely to one flap, and when thus limited it is generally to the anterior one. Eventually, the female will frequently cease to menstruate at rather an early period in life, and will then gradually recover her health, or as the alternative, phthisis will become developed.

Every case of laceration is benefited by some preparatory treatment previous to the operation. The uterus, from its increased weight, and while resting on the floor of the pelvis, will, by traction on the cellular or connective tissue, obstruct sufficiently the circulation to produce not only increased congestion of the organ itself, but also in the neighboring tissues. To give tone to the vessels and relieve the congestion, it is necessary to place the patient on her back, with a bed-pan under her, and have administered a vaginal injection, night and morning, of at least a gallon of hot water at about 100°. The uterus is to be lifted from the floor of the pelvis by means of an india-rubber inflated ring pessary of a proper size. The advantage of the instrument is that if it is introduced with the flaps of the laceration in contact, and the uterus anteverted, they cannot again separate. Any downward pressure has the tendency to crowd the cervix toward the opening in the centre of the ring, while the aperture is not large in diameter to allow any portion to pass far enough to become strangulated. The instrument should be by no means the size of the already over-stretched vagina, for if it were, it would but dilate it the more. It is to be used merely as a temporary cushion; and as there will likely be a laceration of the perineum, which will allow of a prolapse of the vaginal walls, the instrument must be kept in place by a T bandage. In addition to the vaginal injections, the local treatment will consist in the application of a solution of tannin in glycerine every other day, and about once a week the subsulphate of iron or Monsel's salt. These applications should be made just after the vaginal injections, and on removing the secretions, with a syringe, as thoroughly as possible; the parts should be well dried by means of small pieces of old linen laid between the flaps, and removed as the application is made. It is advisable to separate thoroughly the flaps before applying the preparation of iron, that the powder may be dusted over the whole denuded surface; but afterwards they must be brought together, with the uterus anteverted, and the patient kept in the horizontal position for some hours. When the circumstances are such that the patient is unable to keep quiet after the application, it is a good plan to place in the posterior cul-de-sac a proper-sized pledget of damp cotton, with another in front of the anterior lip. These cotton pledgets are for a day or two to take the place of the instrument, which would be injured by contact with the iron, while at the same time they will protect the patient's linen. As a rule, I leave the tampon undisturbed for forty-eight hours, and have the vaginal injections omitted for the same length of time. This treatment may be followed for a month at least previous to the operation, which had best be performed just after the menstrual period.

So long, however, as there can be detected, by pressure from the finger, any tenderness in the neighboring connective-tissue, it is not safe to operate. We may feel satisfied fully that a certain amount of cellulitis has previously existed, and a condition is still remaining which would require but a slight provocation to re-establish the inflammation, were we to disregard this warning.

My mode of operating is to place the patient on the left side, and to use Sims' speculum, or some other perineal retractor to bring the parts in view. The operation can be performed sometimes on the back, as the vaginal outlet is large and the uterus so low that it can be readily drawn outside and returned after the operation. But the left side has the advantage, were there no other, that while in this position there can be less rolling out of the tissues except when the patient is placed on the knees and elbows. The first step is to bring the flaps together in apposition, and while they are lifted up by means of a double tenaculum in the hands of an assistant, the instrument known as the uterine tourniquet is slipped over the cervix below the point of vaginal junction and tightened. The object of this instrument is to control the hemmorrhage, during the operation, which is sometimes excessive without its use. Until recently I have used a portion of twisted wire, such as is usually furnished for the écraseur, the two ends of which were passed through a canula. The loop was slipped over the neck of the uterus, while being held up by an assistant, and tightened by sliding the canula down the wires held in the other hand. As soon as the cervix was compressed as much as possible by this means, the ends of the wire were bent back and several times wrapped around the end of the canula so that they could not slip. Within a few years I have had the instrument constructed, which I have referred to, by using, instead of the wire, a portion of watch-spring passed through a canula, with the application of the double ratchet of the écraseur to lighten the loop about the cervix. Just before constricting the neck, I take the precaution to draw up, with a tedaculum, through the loop sufficient vaginal tissue all around the cervix that the flaps may be brought together easily, while the fold thus formed renders the instrument less likely to slip over the cervix when it has become reduced in size from the escape of blood during the operation. Then, after separating the flaps, the surfaces which have been lacerated are to be freely denuded from one lip to the other, leaving a broad undenuded tract in the centre, from before backward, which is to form the continuation of the uterine canal to the os. The greater the hypertrophy of the organ the more necessity there will be for leaving the canal and outlet large, or both will be too small when the uterus regains its normal size. A difficulty is sometimes experienced in bringing together accurately the vaginal edges of the flaps, in consequence of the great thickening in the central portion, which will be found dense and filled with cysts. It is necessary to remove this tissue freely, and from the opposite side to which it is to be united, so that the two freshened surfaces will correspond in width. Either the scissors or the scalpel may be used to freshen the surfaces, but I prefer the former, from the greater rapidity with which the tissues can be removed. While the tourniquet is being held by an assistant, to steady the uterus, the portion from the flap to be removed is secured by means of a tenaculum in the hand of the operator. At the outer angles of the fissure, just at the vaginal junction, it is necessary when freshening the surface to remove very superficially the tissues at these points. The circular artery is seldom ruptured when the laceration takes place, from its elasticity and position in loose connective tissue, but as the parts contract after cicatrization, it is frequently left just at the termination of the angle of the fissure with the vaginal tissues. The most difficult step in the operaiion is the introduction of the sutures, from the great density of the diseased uterine tissue and the mobility of the organ. The first suture should be passed through the anterior flap, close along the bottom of the fissure, and withdrawn just at the edge of the undenuded strip left to form the canal, again to enter at a similar point in the opposite lip, so as to make its exit on the vaginal surface of the posterior flap corresponding with the first point of entrance. From three to four sutures are generally needed on each side. The last one, through the crown of the cervix being more superficial, is easier of introduction, but needs be passed with more care than the others, with the view of accurately approximating the edges at the os and along the vaginal surface from this point. Before securing the sutures already passed, those for the opposite side must also be introduced, or great difficulty will be experienced. Should there, however, be an unusual amount of bleeding, it can be arrested by only twisting the interrupted suture nearest to the bottom of the angle. But it is even better, before doing so, to see if it cannot be controlled by tightening the tourniquet, which may have become loosened in consequence of the shrinkage of the neck from the escape of blood confined within the tissues when the instrument was first applied. The same plan is followed for securing the sutures, as recommended by Dr. Sims for the operation of vesico-vaginal fistula. The needle is armed with a short silk loop, and after its introduction the silver wire is then attached and drawn through to take its place. The ends of the wires are seized by a pair of forceps and twisted over the "shield," but before being freed from the former they should be bent over flat by means of a tenaculum, used as a fulcrum, under the suture at the end of the twist close to the line of union. If bent over properly, so as to lie close to the vaginal surface, and cut off at half an inch in length, the sutures may remain undisturbed for an indefinite time, but they are generally removed on the eighth day. When the sutures are withdrawn the precaution must be taken to cut the nearest portion of the loop so that it will continue to bind the parts in apposition until it has been drawn out. It is best to remove first the suture nearest to the vaginal junction, for if there should be any tendency to gap in the line, the others can be left for several days longer, so that the ununited portion may heal by granulation.

When the laceration has been confined to one side it is necessarily more difficult, in comparison, to denude throughly the angle at the bottom of the fissure, as well as to introduce the sutures with the same accuracy, than would be the case where both sides of the cervix have been laid open. Fortunately, however, it is not so necessary that the sutures should be passed to the edge of the uterine canal, where but one side of the neck is to be united. The main point is to secure on the vaginal surface as perfect a line as possible, for when the two surfaces thus brought together have been freshened to about the same extent, the parts will be kept sufficiently in contact that the line within the uterine canal will be, in all probability, as perfect as that secured by the sutures.

If the general condition will admit of the confinement, it is better that the patient should remain in bed for some ten days after the sutures have been removed. She will need no local treatment beyond resuming again her hot-water vaginal injections which are generally omitted after the operation, until the sutures have been removed, that she may be kept as quiet as possible so long as there is no vaginal discharge. During this period, however, if a necessity exists for their use, one or two pints of water will be sufficient, to which it is well to add a little castile soap. After the sutures have been removed, the uterus will decrease rapidly in size if there exists no cause of irritation to arrest its progress. To favor this change an early resort to some mechanical support is advisable to lift the uterus from the floor of the pelvis, and to keep the organ anteverted if possible. Some modification of Hodge's open lever pessary I have found to answer for the greater number of cases. The instrument should be made with a curve long enough to go well up into the posterior cul-de-sac, and at least half an inch beyond the uterus, for if too close at this point it will by pressure obstruct sufficiently the circulation about the cervix to increase the hypertrophy of the whole organ, The pessary should be as small a one, both in length and width, as will accomplish the purpose, that the vagina may gradually recover from its over-stretched condition resulting from the previous prolapse. So soon as the patient has sufficiently regained her health, and other circumstances will admit of doing so, the lacerated perineum should be closed, and, if necessary, the operation on the vaginal walls should be performed for restoring the canal to its normal size. On her recovery from the operation, it will then be a question of judgment as to the necessity for the modification in the size and shape of the pessary which had been previously worn, or as to the propriety of discontinuing its use. As a rule there will be no need for any local treatment to the uterine canal, for with the improvement in the patient's general condition all discharge will cease, and the organ will gradually regain its normal size.

Superficial Ruptures of the Perineum.

Dr. M. D. Mann says of this lesion in the *American Journal of Obstetrics*, November, 1874:—

Under the head of treatment may first be mentioned prophylaxis. A proper management of the labor will prevent a large proportion of possible lacerations. It fails, however, quite often, for in some women the disproportion between the diameter of the head and the size of the opening through which it is to pass is so great that something must give way, and this is, of course, the comparatively soft and fragile tissues which go to make up the perineum, rather than the unyielding bones of the head.

Let us suppose, then, that rupture has taken place, what can we do? The first step is to recognize the existence of the abnormal condition, and to see that the tear is of sufficient size to make treatment advisable. In view of the statistics here given, and in view of the testimony of all operating gynæcologists, and of the records of all dispensaries where the diseases of females are treated, as to the frequency of this accident, is it too much to say, that after labor every primipara, at least, should be examined *by the eye*, or if this is too much, by the touch, to see that the perineum has sustained no injury? Even if the tear be so slight as to need no step to promote union, it should be treated to prevent suppuration. Modesty and indifference, we will not say ignorance, prevent this in a great majority of cases, and so the patient and her attendant both remain ignorant of the laceration until she finally presents herself for the treatment of a prolapsus, cystocele, rectocele, displacement, or some other form of uterine disease, which is either caused or complicated, or rendered worse by the loss of the proper vaginal supports. That this does occur is the everyday experience of those treating uterine disease. Every gynæcologist has seen cases where neither the woman nor her attendant were conscious of the "tearing" at the time of its taking place.

We will take for granted, now, that the accident has occurred and has been recognized. Two plans of treatment are open to us. Either we may attempt to gain union by *prima intentio*, or we may wait until the puerperium is completed, and then resort to the operation of perineorraphy. As to the advisability of immediate treatment, authors are divided, some declaring that the tissues being torn and not cut, and from their being bathed by the lochial discharge, urine, etc., primary union is impossible. The falsity of this view is, however, abundantly proved by facts. Many cases have been reported where spontaneous union has occurred; and in central rupture, where motion between the wounded edges is in a great measure prevented by the condition of the parts, union occurs in almost every case, a fistulous opening being a very rare occurrence, "in consequence of the edges of the lacerated wound, almost always perfectly uniting under common surgical care and treatment subsequent to delivery."* Joulin also affirms that in central rupture spontaneous union is the rule. The wound, in fact, bears much closer resemblance to a clean cut than to a lacerated wound. The great tension of the parts causes them to give way suddenly, generally in a straight line, without any special bruising of the edges. If the edges are cleansed and properly adjusted, in the course of a few hours the surfaces are glazed, and a sort of union takes place which prevents —provided perfect quiet of the wounded surfaces on each other is obtained—the lochial and other discharges from interfering with the remainder of the process. Another evidence that primary union is possible, is the good results obtained in a certain number of cases by the method of treatment I am now about to detail. This method has the merit of simplicity, and can be used in all slight cases.

It consists only in drawing the ordinary obstetric bandage well down over the hips, and then applying a light bandage around the knees, or putting a garter around each knee, and then tying the two garters together. Motion is thus in a great measure prevented, and in a certain number of cases union takes place. This plan is, however, uncertain in its results. The wounded surfaces are liable to slip on one another, and union may take place in this position with the surfaces unevenly applied. "Unfortunately, in the great majority of instances our attempts will not be rewarded by success."† Sometimes only the lower angle will unite. The need of absolute rest and the inability to move the lower extremeties is very irksome to the woman. For "this plan should be pursued for ten or twelve days."‡

The next method of procedure is much more effective than that just described, though much more difficult of accomplishment. It consists in the application o the quilled or interrupted suture, in short, the operation of perineorraphy. This is generally recommended in England, Germany, and this country, whenever immediate treatment is advocated.[*] It certainly answers all the indications, and if properly introduced "will succeed in a great number of cases in obtaining union by *prima intentio.*"[†]

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* Simpson, loc. cit., 593.

† Thomas's Diseases of Women, 1874, p. 129.

‡ Ibid.

It possesses, however, great innate advantages. "Sutures add to local injuries, and are not unapt to generate an erysipelatous propensity in the parts."[‡]

Joulin declares that after labor the sensibility of the parts is very great, and the patient bears any operation very badly. It presupposes a certain amount of surgical skill not possessed by every practitioner, and if not well done is worse than not at all. Without the use of an anæsthetic it is very painful. It causes a great amount of unnecessary alarm and magnifies what is not a dangerous accident into something "so severe that the woman must be sewed." If we use an anæsthetic the anxiety is still more increased. Thus the physician comes to be severely blamed—though perhaps unjustly—for allowing the patient to be injured. Again, the patient is tormented with the idea that a very painful operation, the removal of the stitches, is before her. This fear, together with the fear that she will not be cured, and will have to again be operated upon, may, in a nervous subject, cause such an amount of mental anxiety as will materially retard her convalescence.

So much for the two methods now in common use; one does too little, the other too much.

The Vienna method seems to stand between the two, preserving the advantages of the one and possessing none of the disadvantages of the others.

It consists in the application of *serre-fines* to the parts so as to keep the edges fixed and in place, until union has occurred. The only authors, as far as I am able to find, who mention the use of these little instruments, are Joulin[§] and Barnes.[‖] The former recommends their use, and the latter rejects them as inferior to sutures, though he does not pretend to have tried them.

The advantages, in the first place, are that a more perfect coaptation of the parts is attained, the patient is not confined to any one position, easy movement in bed being quite permissible.

It requires no special skill or practice, for its use causes no pain, no undue alarm, no anxiety. The use of the instrument can be justified on the plea of a slight tear which would be better healed than not, without magnifying the accident or making it something more than it really is. No anæsthetic is required, and only a very limited amount of exposure. The whole thing is completed in one or two minutes.

As to its sufficiency it may be well to remark that there is very little tendency in the wound to gap, but rather for the wounded surfaces to slip on each other. This is entirely obviated by fixing one or two points of the skin opposite to each other. It is not necessary that the whole thickness of the flaps should be fastened, and it is certainly better if the same result can be obtained without the perforation.

The *method of application* is very simple. The patient being placed on her side with her back toward the operator, the buttocks are brought near to the edge of the bed, and the the thighs flexed strongly on the abdomen. The parts are thus brought within easy reach without unnecessary exposure. The surfaces are then properly prepared by checking any hemorrhage which may exist and by removing all clots. The serre-fines are then made to grasp both edges as deep as the length of their arms will allow, about half an inch. It may be necessary, in exceptional cases, to trim off the ragged edges. Immediately after labor the parts are very much relaxed, and no difficulty is found in finding tissue enough. One hour after the birth of the child, just before the attendant leaves the house, is the time best suited for the application. The interval between the instruments should be about half an inch, so that two or three are generally enough, unless the perineum be uncommonly long. It is better to put the first one a little below the angle of the wound, and the upper one a little above the upper or lateral end, the third or fourth, if necessary, being placed between them.

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[*] Barnes, Simpson, Scazoni, Simon, Schröder, Thomas, etc.

[†] Schröder, loc. cit., p. 561.

[‡] Meig's Obstetrics.

[§] Traité complet d'Accouchments. Paris, 1867.

[‖] Barnes' Obstetric Operations.

As to the instruments, they should be strong enough to hold themselves in place, but not so strong as to cause pain by pricking, or to cause ulceration. The points also must not be made too sharp.

The general experience in the Vienna Hospital is so satisfactory that the chief assistant declared that they expected to cure every case. This certainly was not in accordance with my observation; but from the notes of the following fourteen cases it will be seen that union took place in every favorable case, and where the necessary conditions were complied with.

For those cases which are more serious, where the sphincter ani is broken, and perhaps the recto-vaginal septum is involved, the deep sutures are commonly employed, as also where the line of rupture extends around the anus, nearly to the coccyx, as in one case which came under my observation. Such cases are fortunately rare. Among the forty cases recorded above, it occurred only three times—that is, including the case where the line of rupture went around the anus.

Case of Double Uterus and Vagina.

Eugène C. Gehrung, of Denver, Colorado, gives the following case in the *American Journal of Medical Science*, October, 1874:—

M. B., single, aged 17 years, menstruated for the first time about the age of 11 years. She consulted me February 9, 1874, for a menorrhagic dysmenorrhœa and profuse leucorrhœa, which weakened her greatly. She also complained of habitual constipation and the passage of coagula towards the close of menstruation, and also of pelvic, abdominal and thoracic pains.

Miss B. was previously under the treatment of a number of both regular and irregular practitioners, each of whom gave a different opinion of her case. She received no benefit whatever from their treatment.

By a digital examination through a narrow hymen—which scarcely admitted my index finger— I found a small cervix, continuous with a small and hard body, beyond and to the left of the vaginal wall. My first impression was that I had to deal with a left latero-flexion of an atrophied womb. The same impression was conveyed to the finger by rectal touch; but, on reaching higher up, two similar but larger bodies were found in continuity with the former, and arching right and left, with a large sulcus between them. I diagnosed double uterus. The whole organ was retroverted, and the left cornu was found to lean heavily against the rectum. Searching for a second vaginal aperture, I soon discovered a small fold of tissue at the site of the left portion of the hymen, into which a sound was passed, and, with the index-finger of the left hand in the right vaginal division, proved the septum intact up to the ossa.

On substitution—with some difficulty—of the middle finger of the same hand for the sound, I found that on each finger I could balance a complete and isolated neck, with a perfect septum between the fingers. The septum measured from one-eighth to three-sixteenths of an inch in thickness, and each cervix had a diameter of about half an inch. Probes were passed into both wombs to a distance of an inch and a half, but could not be brought into contact; on the contrary, they diverged.

The point of union of the two uteri does not exceed half an inch in diameter; their length is about two inches, and the diameter of the body of each is only about six-eighths of an inch. Vaginismus was present to such a degree that examinations or attempts at treatment caused spasmodic pains for several days. The vaginal septum required division for the following reasons:—

1st. To remove the vaginismus.

2d. To remove the cause of the formation of the above-mentioned coagula; and,

3d. For the purpose of cleanliness, and especially the application of a pessary to correct the displacement.

I therefore proposed the division, which proposition was readily accepted and urged by Miss B. and her parents. Consequently I operated on the second of June, assisted by my friends Drs. R. G. Buckingham and W. R. Whitehead.

Operation.—After complete etherization, the patient was placed in the left semi-prone position of Sims, and a Sims' speculum introduced into the right vagina. Traction on the speculum made both vaginal apertures gape, and with a pair of long, straight scissors, the septum was carefully cut. After reaching the cervices, the scissors were turned towards the Douglas cul-de-sac, and about half an inch more of the septum—which was prolonged in that direction—divided. There was no bleeding, beyond a little oozing. Two small but completely formed cervices uteri, each with a plainly perceptible os, were now exposed to view. At a subsequent examination during menstruation blood was seen to issue from each os.

After-treatment and Result.—The patient was directed to remain quiet for a few days, to use twice daily an injection of a weak solution of permanganate of potash. The redundant tissue of the divided septum rapidly disappeared, and at the present date there is only a cicatricial elevation to be found at the lines of insertion of the former septum. By the use of a pessary (a modification of Hodge's closed lever), the retroversion was soon corrected, and the patient has had since a daily natural stool. Besides this, the pessary had the advantage of preventing reunion at the upper angle of the cicatrix—if there was any tendency to that present. A few mild applications to the mucous membrane of the cervices and vagina soon arrested the leucorrhœal discharge. Dysmenorrhœa ceased, the quantity of menstrual discharge has become normal, and no coagula have made their appearance at her menstrual period since the operation. In short, Miss B. is now in perfect health.

Case of Normal Ovariotomy.

The annexed case in the service of T. Gaillard Thomas, M. D., is reported by Coert Dubois, M. D., House-Surgeon, in the New York *Medical Journal*, August, 1874:—

Miss A. B., aged twenty-two years, entered the hospital June 14, 1873, with the following history: Menstruated at twelve years; always regular, varying from two to four weeks. Time of flow four to eight days, and amount excessive. Dysmenorrhœa, pain beginning a week before, subsiding somewhat during flow, and most intense for four or five days after. No leucorrhœa. For seven years has suffered constant pain in left ovary, increased during menstruation and after any exertion; more or less pain in right ovary also at menstrual times. For five years has been confined to bed most of her time, not being able to walk or even stand without extreme pain. Position of uterus normal; urine normal. General health good; appetite fair; bowels constipated. Has taken morphine daily for a long time, and now takes from one-quarter to one-half grain in twenty-four hours. Somewhat nervous, but no marked hysteria. Had had many physicians, and exhausted all treatment. Counter-irritants of all kinds have been tried, both in hospital and before admission.

Diagnosis.—Chronic ovaritis. Both ovaries sensitive, and the left apparently enlarged.

Left the hospital June 28, 1873, to return in the fall for further treatment. Readmitted September 15, 1873; no treatment except for general health.

October 26th.—Dr. Thomas called a consultation, and it was decided to perform operation for removal of one or both ovaries (normal ovariotomy), in a few weeks, if patient was no better. Iodoform suppositories and pills of oxide of zinc ordered.

November 20th.—*Operation.* Nitrous-oxide gas given by Dr. H. D. Nicoll, but, patient not taking it well, ether was substituted; it took half an hour to anæsthetize the patient.

Operation was commenced at 3.30 p. m., Dr. Thomas being assisted by Drs. Ward, Hunter, and the house-staff. Incision was made from pubes, extending upward about three inches; integument, adipose tissue, etc., being cut down to peritoneum—after hemorrhage ceased, peritoneum cut upon a director, omentum pushed aside, fingers passed to fundus of uterus, then to ovaries, which were drawn out and ligated by double silk ligatures, passed through and tied on either side. On left side Fallopian tube was included in the ligature. Both ovaries were cystic, and left seemed somewhat enlarged. Pelvis was sponged out, and wound closed with four deep and six superficial silver-wire sutures. Time of operation twenty-five minutes. Ovaries examined by Dr. Noeggerath, who found them to be of normal size. Under the microscope both were found to be in a state of fatty degeneration and interstitial inflammation. A number of pacinian corpuscles, with numerous filaments leading to them, were seen. Dr. Noeggerath thinks the pain was due to the inflammation of the peritoneal covering, and the contraction resulting.

TREATMENT AND CONDITION AFTER OPERATION.

21st.—Patient reacted well from ether; has had a good deal of pain, which was controlled by morphine subcutaneously. Tried milk, but could not retain it. Has vomited, excessively so, in afternoon. Morphine stopped, and potassium bromide, about grs. xv. every three hours, given by rectum.

22d.—Vomiting somewhat decreased, but, as potassium bromide not sufficient to subdue pain, again gave morphine. Patient nourished with beef-extract by rectum. Acid. hydrocyanic. dil. gt. j. given occasionally to allay vomiting.

23d.—Instead of morphine subcutaneously, aq. ext. opii, gr. j. to grs. ij., given every three hours, with beef-extract by rectum.

24th.—Since using aq. ext. opii, has had less pain and less vomiting; patient very weak, but is retaining some nourishment by stomach.

25th to 28th.—Slowly improving.

28th.—Stitches removed and union good, except in lower part of wound, where she had a small abscess. Has had no marked symptoms of peritonitis since operation. From November 28th to December 13th has been troubled with intestinal pains, resembling colic, varying in intensity and location; still some vomiting. Pain subdued by aq. ext. opii and morphine, both hypodermically and by stomach.

December 23d.—Has been gradually improving and is sitting up in bed.

February 10th.—Stopped morphine entirely, by her own request; appetite excellent, and is walking about the house every day.

Patient had a flow at the menstrual time in December and January, lasting the same number of days as her normal menstruation, and with the same amount of pain. At other times has been comparatively free from the pain, which formerly she had all the time.

24th.—Left hospital to go home; for past few days has been walking out-of-doors and riding daily. Health improving very fast.

In February and March had no flow, but more or less pain at the menstrual time. In April and May again had flow similar in character to menstrual blood.

June 11th.—Patient was in the city, and called at the hospital. Is looking well, and has gained in flesh and strength; walks and rides without much fatigue. Says that, although suffering some pain at times, she is well satisfied with the operation, and feels hopeful as to continued improvement.

RECORD OF PULSE AND TEMPERATURE.

November 20th.—9.30 p. m., pulse 96, temperature 99°; 11.30 p. m., pulse 120, temperature 100½°.

21st.—8 a. m., pulse 108, temperature 99½°; 10 a. m., pulse 105, temperature 98½°; 2 p. m., pulse 108, temperature 99°; 9 p. m., pulse 124, temperature 100 1-5°; 11 p. m., pulse 130, temperature 100 3-5°.

22d.—5.30 a. m., pulse 140, temperature 101°; 10.30 p. m., pulse 130, temperature 100°; 12 m., pulse 120, temperature 99°; 8 p. m., pulse 126, temperature 100°; 11.30 p. m., pulse 130, temperature 100 1-5°.

23d.—5 a. m., pulse 130, temperature 100°; 10 a. m., pulse 130, temperature 100°; 2 p. m., pulse 130, temperature 100 3-5°; 5 p. m., pulse 120, temperature 100°; 9.30 p. m., pulse 126, temperature 100°.

24th.—a. m., pulse 120, temperature 99 3-5°.

After November 24th, pulse sometimes rapid, but temperature never over 99, and usually normal.

The Medical Treatment of Uterine Polypus.

The subjoined case is reported in the *Irish Hospital Gazette*, September 15, 1874, by Dr. T. TUCKEY:

Mary B——, æt. 36, the mother of four children, applied for advice at the Dispensary, suffering from the following symptoms:—Pains in the back, great weakness, anorexia, nausea and occasional vomiting, palpitations of the heart, and flatulence; her tongue was flabby and indented, and her pulse weak. On inquiry, I found that she was subject to frequent attacks of uterine hemorrhage, and that she was greatly annoyed by leucorrhœa. She said that she felt a "lump" in her left side, and asked me to examine it; but, on palpation, I could discover no tumor. She said that she had been subject to the hemorrhage for a year and a-half, and from that time had been gradually declining in health; she looked very thin and worn, and was quite gray. She would not consent to my making any vaginal examination, so I had to content myself with guessing at the cause of her symptoms. I believed that she was suffering from some tumor of the uterus, and gave her the following mixture:—

℞.	Liq. calcii chlorid.,	ʒiv.	
	Tinct. ferri mur.,	ʒj.	
	Spirit. chloroformi,	ʒj.	
	Tinct. aurant.,	ʒij.	
	Infus. calumbæ,	℥vij.	M.

Fiat. Mist. Two tablespoonsful three times a day.

I gave her some rhubarb pills to correct the constipation. On the day week following she did not come herself, but sent word that she felt a little better, and requested me to renew the mixture. I for some weeks gave her messenger the bottle, and heard that she was getting slowly better. The hemorrhage was less, her appetite better, and her bowels from having been constipated became so free, that I had to give her an astringent mixture. About five weeks after presenting herself at the Dispensary, I was hastily sent for, as she was said to be in labor, and the intelligent old lady who brought the news (would we were well rid of the race) told me she suspected it was a false birth, and kindly assured me that I had killed the child with "my bottles." When I arrived the woman said she was most anxious to be examined, as she felt all the symptoms of a miscarriage. With some difficulty, I discovered the tumor she complained of, and found it was the uterus enlarged. The pains had then ceased; she had lost a good deal of blood, and felt very weak. On examination *per vaginam*, I found the uterus enlarged and tilted back, the os was patulent, and easily admitted the tip of the forefinger, and a firm substance could be felt blocking up the inside of the womb. The hæmorrhage ceased on the application of cold, and I then gave her fifteen grains of hydrate of chloral, when she went to sleep. Next day I found her to all appearance well; she was up, was in very good spirits, though still weak; she promised me to renew the bottle, and said she knew that it could not be a child, as she had certain reasons for doing so. I did not see her again for some days, as she sent me word she was better; but the day week after her sudden illness, I was again hastily summoned, as she was said to be dying. On my arrival I found her to all appearances very bad indeed. She was tossing her hands about; her eyes were turned in her head; she was speechless. I hastily looked to see if there was any hemorrhage, when I found there was none, either about her person or in the bed; and I was informed that there had not been any for two days; but, that she was working in the field the previous day, and had felt weak, and having lain down for some time had then gone home, where she was found in the evening, in the state I now saw her. Suddenly in my presence she got quite convulsed, the breathing became stertorous, and putting her hands to her throat she began tearing it with her nails until the blood ran, and then fell back breathless, and to all appearance dying. She could not swallow and indeed I thought it useless to try anything. In a short time she appeared to be coming to, and lay quite quiet, breathing naturally, but she was as pale as death. She then got another paroxysm, and I thought all was over; she, however, rallied, and when she got calmer I asked her how she felt (more for experiment than anything else). She shook her head, and putting out her tongue pointed to it. I then believed that I was dealing with aggravated hysteria, and when I had got the appliances, administered a fœtid enema, and ordered a draught composed of tincture of valerian and fœtid spirits of ammonia, to be taken twice during the night. She appeared much more composed after the enema, and then I left her.

Next morning found her much better; she had had only one slight convulsion, and her speech had returned about an hour previous to my coming. She then told me the following circumstances:—The day she was taken ill, she was working in the field, when suddenly the "labor pains" returned very violently; she lay down, and in about a quarter of an hour passed something, which she then showed me. It was somewhat decomposed, but was without doubt a polypus, which had been connected by a short pedicle. It was about the size of a small orange. The pedicle appeared quite shrivelled, I suppose from being exposed to the air. I cut into it, but could discover nothing which would lead me to suppose it was a mole, but am inclined to think it was a fibrous polypus, and believe that its expulsion was due to the use of the chloride of calcium. I was induced to prescribe the chloride of calcium in this case from observing the benefit which had followed its use, under Dr. McClintock's advice, in a private patient, who was afflicted with a uterine (fibrous?) tumor, and whom I sent to that gentleman for treatment.

The patient is now quite well.

Affections Peculiar to the Female Urethra.

Dr. William Goodell, Professor of the Diseases of Women and Children in the Hospital of the University of Pennsylvania, has a clinical lecture on this topic in the Philadelphia *Medical Times*, October 24, 1874, from which we extract as follows:—

The female urethra, from its shortness, elasticity, and large calibre, is very rarely narrowed by strictures. But it is liable to a class of disorders from which the male urethral canal is almost wholly exempt. The most common and the most painful of these is the one I purpose to show you in the person of this woman.

She is forty-three years old, but constant suffering has made her look much older. In fact, from her great emaciation, care-worn expression, and general cachetic appearance, one might readily suppose her to be the victim of some grave constitutional disease. Her history, in brief, is as follows: Four years ago, while in perfect health, her urine began to scald her. The pain, at first bearable, daily grew worse, until it now is so acute that she holds her water as long as possible, and when passing it clutches the bed-post in her agony. The act of voiding the last few drops gives her the most suffering. Before long, cohabitation became painful, but, with that submissive affection which characterizes many a wife, she yielded to her husband's wishes until it could no longer be borne. For several months she has ceased to have intercourse with him. This is, of course, a source of domestic unhappiness. Unless she stoops and widely straddles her legs, walking is attended with much pain. She complains of a constant heat and throbbing in the external organs of generation, has more or less leucorrhœa, and finds her linen often stained with blood and her urine streaked with it. By brooding over her sufferings and over her incomplete conjugal relations, she has got into a very morbid state of mind. Now, most of these symptoms are so characteristic of some utero-vaginal affection, that the physicians whom she has consulted have been misled to direct their attention to the womb and vagina. Applications have been made to the cervix uteri, which, by the way, is somewhat eroded; vaginal suppositories have been used, and even a pessary has been introduced. What has served still further to lead them astray is a marked sympathetic or reflex pain in the left ovarian region, which is almost always pathognomonic of uterine disease. I ought to do them the further justice to add that they saw her before her sufferings had become as acute as they are at present. Nor can I afford to be uncharitable, for I myself have made the same blunder.

As I separate her thighs and expose the meatus urinarius, those of you on the lower benches can see, peeping out of it, a small crimson and wart-like body. It has received the names of urethral caruncle, vascular tumor, and vascular excrescence of the urethra. I seize it with this toothed forceps, and by very gentle traction bring it wholly to view. It now looks like a small Antwerp raspberry, and shows a broad base of attachment just within the lower verge of the meatus. Insignificant in size as this little growth is, it has embittered this woman's life for the past four years. Notice its vascularity: it bleeds on the slightest touch. Remark also its extreme sensitiveness: although profoundly anæsthetized, the woman flinches and draws up her limbs. Were she not under the influence of ether she would writhe under the brush of a feather. Let me here remark that the vulva and outlying reproductive organs of a woman are the last to yield to the influence of an anæsthetic. Sensation is here so acute that it will remain long after other peripheral nerves have become benumbed. Thus, in the attempt to pass the hand into the vagina for the purpose of performing version or to introduce a speculum in cases of vaginismus, although the woman may be breathing stertorously, she will often so resist as to need a fresh instalment of ether. I mention this fact not only for your future guidance, but also as a partial explanation of her acute sufferings.

You must not infer that every case of caruncle presents symptoms as exacting as these. In the majority of cases there will be no constitutional implication, and the woman will complain merely of discomfort or of pain during the acts of micturition and of coition. But, on the other hand, worse cases will be met with,—cases in which, by loss of rest, constant suffering, and endless brooding, insanity has been induced. Some women have even been goaded by their anguish to commit suicide. Last autumn I saw a young married lady who was broken down in mind and body by her sufferings. She was peevish, morose, and melancholic, and had dysmenorrhœa and every imaginable ache. Coitus had not been indulged in for months, and she had taken to her bed. Neither her medical attendant nor myself could believe that the presence of a urethral caruncle satisfactorily accounted for pale lips, hollow cheeks, sunken eyes, and for her grave mental and physical manifestations. I sounded her heart and lungs, investigated the condition of her abdominal organs, examined the cervix uteri for a cancer, and finally, I am ashamed to confess, straightened out a somewhat anteflexed womb. Yet, after we removed the caruncle, she became another woman. As if by magic, all her pains and aches, even her dysmenorrhœa, left her. She got out of bed, gained rapidly in flesh, is now an active housekeeper and, what is more rare, a very grateful patient.

These torturing growths are more common to the married than to the single, and are usually found in women who have passed the prime of life. I am inclined to think that they generally owe their existence to the congestion of the urethral plexus of veins,—such, for instance, as is induced by the pressure of the gravid or the displaced womb, or by the pressure of an over-distended bladder or rectum. In fact, pretty much the same causes are at work which tend to produce piles. Habits of uncleanliness may also generate them, and so may any irritating leucorrhœal discharge. Gonorrhœa is likewise said to be a cause, but I have seen no instance in which they could be traced to this disease. They consist of hypertrophied papillæ covered with a layer of tesselated epithelium, and are largely supplied with nerves and blood-vessels. They may be single or multiple, sessile or stalked, pink or scarlet, and are usually found on the lower verge of the meatus. I have, however, seen them stud the whole circumference of this opening, and occasionally have found them extending up the canal for a distance of half an inch or more. In size they range from that of a pin's head to that of a pigeon's egg, but I have never met with one larger than a good-sized raspberry. The suffering caused by them bears no relation whatever to their size. Very small ones may give rise to intolerable anguish, while a large one may produce merely a sense of discomfort. The more vascular and vivid in color, the more sensitive do they seem to be. Some authors describe a pale, non-vascular, but exquisitely sensitive tumor of the urethra, which appears to be neuromatous in character. This I have never met with. I have, however, twice removed from unmarried girls a worm-like tumor, which dangled from the vestibule. It was pale in color, but seemed to give no discomfort.

Since most of the lesions of the reproductive apparatus, such as vaginitis, uterine displacements, etc., give rise to vesical disturbance, and since the symptoms are not always so typical as in the case before us, a urethral caruncle is very likely to be overlooked by a physician. Reflex symptoms, uterine in their expression, will also tend to lead him astray; while a very natural delicacy prevents him from making the needful visual inspection of the parts. Early in my practice a mortifying blunder of this sort taught me to make it a rule always to inspect the urethral opening whenever dysuria is complained of. But woman's modest nature—nor would we have it otherwise—instinctively resents such an examination. If brusquely proposed, it will almost always be denied. How then is it to be effected? Let me here give you a hint worth knowing. Never suggest to a woman the necessity for making an ocular inspection of her person, but do it without her consent. Let us suppose that you are called in to a case in which dysuria is a prominent symptom. You will very naturally infer the existence of some uterine lesion, and will, of course, ask for an examination with the speculum, to which most women will submit. While exploring the uterus with the index-finger, you may with the thumb press upon the meatus, and notice whether the contact elicits pain. During the introduction or the withdrawal of the speculum you can always visually inspect the parts without the knowledge of the woman. Now, in my experience, whenever you can confidently say to your patient, "I have discovered the cause of your trouble; here it is," and then by digital pressure upon the caruncle can convince her of the correctness of your statement, she will offer no resistance to any future needful exposure of her person. Under all circumstances, however, you must not forget to go through with the formality of covering her with a sheet; for just as you gild and sugar-coat what is bitter to the taste, so must you gild and sugar-coat what is bitter to the mind.

What is the prognosis of this affection? Very good, when the caruncle dangles from the meatus by a slender stalk. Very guarded, when it is sessile or multiple, and especially when it extends up the canal. Like the heads of the fabled hydra—whenever a sessile caruncle is removed, one or more are very likely to spring up from its stump like mushrooms. Yet even then a cure is usually attainable; while at their worst, as I shall presently show you, their growth can be restrained and the woman made comfortable.

Now comes the final question: What are our resources for the cure of this affection? When distinctly pedunculated, one snip of the scissors is all that is needful for a cure. But when sessile, as they usually are, difficulties arise in their removal which demand the administration of ether and the aid of two assistants.

Let me now illustrate this on our patient. She lies in the lithotomy-position, fronting a good light, and with her knees supported by these gentlemen, who also place their fingers on each side of the meatus and stretch it open. I now seize the growth and carefully remove it by repeated clips of the scissors. I take care to include a portion also of the surrounding healthy mucous membrane. To prevent its otherwise sure return, I quickly dry the raw surface, sear it with the frayed end of a match moistened with fuming nitric acid, and then with a little olive oil decompose any excess of acid. The bleeding was at first quite free, but the acid has, as you see, completely stayed it.

This, however, is not always the case. Three months ago I removed for the second time a cluster of sessile growths, and found at my next visit, twelve hours afterwards, that the lady had lost and was losing too much blood. I staunched the bleeding point with ice and Monsel's salt, and put on a compress with a T-bandage; but at my next visit, six hours later, I found her quite blanched from a recurrence of the hemorrhage. I now ineffectually applied the solid stick of lunar caustic, and then tried to nip the bleeding point with a serrefine, but the tenderness of the part was so great that she would not permit any further interference; nor would she again inhale an anæsthetic. For a moment I was at my wits' end to know what to do. The prospect of spending an hour or two at her bedside, with my finger pressing on the urethra through the vagina, was not an agreeable one. But I finally succeeded by stuffing a sponge half way into the vulvar opening. Its elasticity and that of the perineum, on which it rested, made the needful pressure upon the bleeding surface.

For avoiding this complication, and also for insuring a complete destruction of the growth, the galvano-caustic loop is undoubtedly the best instrument. But its expense will always put it out of the reach of those of you who expect to practice in this country. A red-hot knitting-needle could, at a pinch, be used as a substitute.

But it is high time to return to our patient. The after-treatment will consist of the application twice a week of the undiluted commercial carbolic acid (Calvert's No. 4), until the raw surface has skinned over. By the use of this agent I have best succeeded in preventing a crop of small growths from springing up from and around the site of the parent growth. Sometimes you will have to repeat the cutting operation, but not often, if you follow the plan of treatment I have laid down. Once, in an obstinate case, which had passed through several hands and had stubbornly resisted repeated operations, I gained a cure by first cutting off the growth, and then by forcibly dilating the urethral canal with the expanded blades of a dressing-forceps until it admitted my index-finger. I argued that by stretching the muscular coat of the urethra I should release the involved plexus of veins from its spasmodic contraction and thus relieve their congestion. My friend Dr. Theophilus Parvin has succeeded by excising the growth, and bringing the edges of the wound together with stitches. By this procedure the site of the caruncle is covered with healthy tissue, and the chances of its return greatly lessened.

But every woman will not submit to the cutting operation. What then is to be done? Whittle the end of a match to a point, and with it touch each growth twice a week with the crystals of carbolic acid made fluid by heat. This is a very painless operation, and one which you will find very effectual in mummifying the tumor and blunting its sensitiveness. So prompt, indeed, is the action of this acid as a local anæsthetic, that, immediately after its use, I have quietly snipped off the tumor without the knowledge of the woman. For analogous conditions, Dr. A. W. Edis recommends (*British Medical Journal*, April, 1874, p. 449), the use of a saturated solution of chromic acid. It should be applied in the same manner as the carbolic acid, but with more care, and should afterwards be neutralized by pledgets of lint dipped in a strong solution of carbonate of soda. In this relation let me say that during a uterine treatment you will occasionally discover a painless caruncle. If pedunculated, snip it off; but if sessile, be wary of touching it, lest its removal should cause the growth of secondary painful ones.

There are a few other affections of the female urethra, of which I have no examples to show you, but which you will at long intervals meet with. One of them is a granular erosion of the lining membrane, very analogous to that of the cervix uteri. The pain in micturition is excruciating, and the whole urethral tract is tender to pressure made by the finger in the vagina. Upon gently stretching open the meatus, you will find the mucous surface highly congested and denuded of epithelium. This will usually yield to the passage of a pine stick of the size of a catheter, smeared over with undiluted carbolic acid, the urethra being immediately afterwards injected or swabbed with olive oil. This acid may be boldly applied once a week until the local symptoms disappear. In obstinate cases one application of nitric acid, made in precisely the same manner, will promptly cure your patient. But its use is open to the very grave objection of often causing an obstinate narrowing of the canal, which may make the woman's condition worse than before.

Another affection of the urethra is prolapse of the mucous coat. This usually happens in children, but you will occasionally see it in adults. It is readily told from a caruncle by its less vivid color, by the absence of bleeding, by a low grade of sensitiveness, and by its involving the whole circumference of the meatus. A cure is here attainable either by snipping off a thin strip of the prolapsed mucous membrane, or by one or two applications of nitric acid in a narrow streak around its whole circumference. In either case the cicatrization of the wound will be hastened by subsequent touches with the lunar-caustic pencil.

Very rarely, indeed, will the urethra be the seat of a true polypus. When present, it starts usually from a point high up in the canal, and very generally escapes detection until the patient has passed through several hands. Sometimes it dangles in the bladder, and then stops the flow of urine like a bell-valve. Whenever the act of micturition is obstructed, the physician should search the bladder for a stone, or other foreign body, and, failing to discover one, should dilate the urethra and explore it with his finger. A polypus should be twisted off, or snared in the noose of a double canula. Once removed, it never returns.

A cancer affecting the urethra primarily is a very rare disease. I have seen but one example of it. The woman suffered from obstruction, and I wished to scrape away the growth, but she would not consent, and I lost sight of her. If a removal of the morbid mass is not possible, the most that can be done is to keep the canal open by the daily passage of a catheter and the occasional use of a laminaria tent.

III. DISEASES OF CHILDREN.

The Local Treatment of Diphtheria.

At the St. Louis Medical Society, as reported in the St. Louis *Medical and Surgical Journal*, October, 1874:—

Dr. Dalton read a brief paper on the local treatment of diphtheria. In diphtheria, the exudation depends on a parasitic fungus which is best dislodged by parasiticide remedies. It is difficult to penetrate and remove the exudation by applying arg. nit. in solution. The whalebone probangs are not stiff enough to admit of the force necessary to sponge out the throat and remove the false membrane. He uses a sponge the size of a nutmeg, tied to a small stiff stick, and dips it into a mixture of carbolic acid, honey and water, or tr. ferri mur., honey and water, thrusts it over the tongue to the back of the pharynx and quickly turns it around three or four times, and removes it. This is done once daily. His formula is

℞.	Honey and water,	āā ℥j.
	Carbolic acid,	gtt. xx-xxx.

Sometimes stronger. Another formula is

℞. Honey and tr. ferri mur., equal parts.

Again,—

℞.	Honey and water,	āā ℥j.
	Tr. ferri mur.,	℥ij.

Constitutional treatment consists in quinia and tr. ferri mur., with milk diet, *ad libitum.* He uses the same constitutional treatment, and the same local applications reduced in strength, in treating scarlatina.

Dr. Kennard considered Dr. Dalton's treatment of diphtheria barbarous—too severe entirely. *His* local application in diphtheria consists of *oil of sassafras* applied with a fine camel's hair pencil, with a curved handle, or the oil of turpentine, two or three times daily. This application will soon relieve the throat affection. Constitutional treatment, quinia, iron, etc., is absolutely necessary.

The following local treatment is advocated by Dr. B. Rhett in the Charleston *Medical Journal and Review*, October, 1874.

The course of practice adopted is this: Upon seeing a case of Diphtheria, a mercurial purgative is given, and the Muriated Tinct. of Iron is administered in suitable doses every four hours. The throat is swabbed, gargled, or atomized with the following:

℞.	Acid Muriatic,	M. xx.
	Acid Carbolic,	M. xx.
	Glycerine,	℥ss. to ʒj.
	Water,	℥viii.

I prefer the atomizing where it can be done, as the parts are not torn or bruised, and the spray reaches every portion more thoroughly.

I would lay especial stress upon the mercurial purgative, as I have seen cases resisting the other remedies take a favorable turn upon its administration and action. Under Providence, I consider the life of one of my own children as due to the administration of 10 grains of Calomel, given with a hope of producing emesis, which Ipecac had failed to produce. My experience in this case induced a further trial, and I have not been disappointed. Let me be clearly understood as not seeking the constitutional effects of Mercury, but its eliminative action by the bowels, or as an emetic, for it proves emetic to young children in a large dose, say 10 grains to a child eighteen months to two years old.

I would call attention to one point in this programme: Chlorine is a component part of all these remedies. And now let me attempt to give some explanation of reasons inducing the adoption of this course:

1st. Not only are the secretions of the primæ viæ disordered, but we must presume that the secretions from the diseased throat are swallowed, and prove, if retained in the stomach and bowels, not only a source of poisoning by the absorption into the circulation of the deleterious material, but of irritation to the digestive track, and thus interfere with the due elaboration and absorption of the nutriment so essential in so asthenic a disease. The indication, therefore, is to sweep away from time to time this offending material by purgative action; mercurial purgatives have in my hands proved the best.

The use of the iron is indicated to arrest that blood deterioration, especially of its fibrinous portion, which is manifested in its escape upon a mucous surface, where, in a state of health, it is impossible to exude. The Muriated Tincture is preferred on account of the Chlorine in combination being destructive to lower organisms.

On Lancing the Gums.

In an article on this subject in the *British Medical Journal*, September 19, 1874, Dr. James Finlayson, of Glasgow, writes:—

The introduction, or at least the spread, of the practice of lancing the gums may be ascribed to Ambrose Paré. His celebrated case was that of the son of the Duke of Nerves. This child died when eight months old, and the dissection was made and recorded by Bonetus. No cause of death was discovered, except a hardness of the gums, and, on these being laid open, the teeth were found ready to appear. From this it was argued that, if this incision had been made during life, the child might have been saved. Such a remarkable inference received, in the course of time, a still more remarkable confirmation. Called to see a child suffering from teething, and hearing of another whose death had just occurred from the same cause, M. le Monnier was anxious to observe the state of the teeth and gums in such a case. He made a large incision into the gums, but his pathological inquiries were arrested by the restoration of the child to life! But, notwithstanding the experience and authority which accumulated in its favor, incision of the gum does not seem always to have been followed either by the appearance of the tooth, or by the cessation of the symptoms to be relieved. The wound in the gum healed up, and a great question was raised as to whether the scar did not hinder the subsequent progress of the tooth. This fear was alleged to be founded on ignorance; for, it was maintained, "all parts which have been the seat of wounds or sores are always more ready to give way to pressure." This reply, however, was met by the assertion that, while new cicatrices were easily torn, old ones were not, and that real trouble had been experienced from this cause. The controversy as to the cicatrix is closely related to another question, viz., at what stage of dentition may the operation be performed with advantage? and how often should it be repeated? While some warn us not to operate too soon, saying that the operation has no room except when the tooth is far advanced and almost visible, others equally warn us against the possibly fatal delay engendered by timidity or inexperience, contending that, if we wait till the gums are considerably elevated and pointed, "the chief danger and pain are then at an end, and nature is sufficient for the purpose." With the practice of early incision, there is naturally associated the justification of repeated lancing. John Hunter was not ashamed to confess that he had "performed the operation above ten times upon the same teeth," and Dr. Churchill tells of a case in which he "was obliged to use the lancet thirty or forty times, each tooth requiring several operations." Underwood recommends, in obstinate convulsions, the lancing of the gums for five or six days in succession. Even this was not enough for Marshall Hall. "The idea of merely dividing the gum to allow the teeth to penetrate it, is inadequate (he said) to the real importance of this all-important remedy. In order to accomplish all that this measure is capable of effecting, we should lance the gums *freely* and *deeply* over a great part of their extent *daily*, or *even twice a day*, and apply a sponge with warm water, so as to encourage the flow of blood."

The method of cutting the gum was in like manner subject to much variation, alterations probably being made when it was found that the results were not so brilliant as expected. Various instruments, including the finger-nail and the edge of a sixpence, were used; but, when the operation was regarded in a serious light, some proper cutting instrument was usually preferred. But, even when a lancet was used, a few fibres might be left undivided; this was held to account for the want of success too often observed, and was alleged as a reason for the increase, instead of the relief of the pain which sometimes followed the operation. Crucial incisions were preferred by some, not only as dividing the gum more completely, but as allowing more easily of the flaps being dissected up and snipped off with scissors. But even this might not suffice; it was alleged by M. Baumes that a piece of the alveolar process might have to be taken away, so as to remove the obstruction, and the offending tooth itself might even have to be extracted.

The very proposal of such violent measures indicates clearly enough that, in the hands of its most devoted admirers, incision of the gums was far from being so satisfactory as was usually represented; the amelioration of the symptoms which resulted was often more apparent than real, and was frequently found to be but temporary.

The tendency of opinion at present seems to assent to Dr. West's dictum, that the circumstances in which the use of the gum-lancet is really indicated are comparatively few. Rilliet and Barthez could only recall one case in which any real benefit resulted from the operation, and the best Trousseau could say of it was, that the practice was useless. Even the most skeptical, however, seem to have encountered occasional cases where convulsions ceased on the lancing of the gums; but such a result is also obtained at times from other most unlikely remedies. It may here be stated that, in his careful study of 102 cases of convulsions in children, Dr. Gee could find no reason to believe that the teeth bore any part in the causation of the fits, and in none of the cases did it seem necessary to lance the gums.

Diphtheritic Paralysis.

Sir JOHN ROSE CORMAC, of Paris, read a paper before the British Medical Association, entitled "Diphtheritic Paralysis: its Natural Course, Pathology, Treatment, and Relation to Paralytic Affections following Fevers." The following is an abstract:—

The author began by describing a minutely observed very severe, but typical, case of diphtheritic paralysis. The main object of the paper was to elucidate the natural history of the affection, which he looked upon as the true guide to the prognosis and treatment of each case—so far as a guide exists irrespective of the individual peculiarities of the patient, and the character of the disease in respect of the district, season, and race in which it occurs, and (should the disease be prevailing as an epidemic) the constitution of the epidemic. The most skilful physician cannot cure pneumonia, typhoid fever, or diphtheria; but he can guide to recovery many patients suffering from these diseases who would be lost by the routine administrator of remedies. Medicines are sometimes exceedingly useful in diphtheritic paralysis, as well as in the earlier stages of diphtheria; but in each case, and in each epidemic, we find that the efficacy of particular remedies varies with the variation in the therapeutic opportunities. The author regarded a generous, easily assimilated diet as the basis of treatment in all stages and forms of diphtheria and diphtheritic paralysis; ferruginous medicines are nearly always useful, but, like all other medicinal agents, they have their times for being given and for being withheld. In diphtheritic paralysis, the persistent use of local stimulants, and particularly small bands smeared with a pungent paste composed of mustard, ginger, and lard, constitutes the most useful topical treatment which can be adopted. Electricity has its opportunites, and is sometimes most beneficial. Change of air, the douche, and short courses of nux vomica, are agencies which frequently give a start to a lagging recovery. Still we must never lose sight of the fact that the paralysis has a definite career to run; and that, if the patient can only be got to eat and drink well, and digest his aliment, he will, at the end of a longer or shorter time, be restored to health, provided always, of course, that no insuperable obstacle exists, such as implication of the muscles of respiration in the paralysis. In discussing the pathology of the affection, the author referred to recent German and Italian physicians who have described autopsies in cases of diphtheritic paralysis, in which they found a structural change in the grey and white matter of the medulla, which appearances some of them have termed disseminated myelitis. The author looked on these appearances, in the cases referred to, as secondary. Diphtheritic paralysis, though it has its own peculiarities and specialties, is similar in kind to the paralysis which we meet with as a sequel of typhoid fever, relapsing fever, scarlatina, and dysentery. In all it is peripheric. Its invariable starting-point is the velum pendulum palati; and that is a distinctive peculiarity between it and the paralysis following typhoid fever, relapsing fever, scarlatina, and dysentery.

Pneumonia in Childhood.

Dr. **Rautenburg**, of St. Petersburg, sends a preliminary contribution, upon pneumonia in childhood, to the number of the *Jahrbuch für Kinderheilkunde* for September 18, 1874, translated in the London' *Medical Record*, October 24, 1874. His conclusions are:—

The distinction of croupal and catarrhal forms of pneumonia in childhood is justified neither by microscopical nor macroscopical examinations of the dead body, nor by the course of the disease during life. 2. The designation of lobar pneumonia as croupal, and lobular as catarrhal, must be looked upon as incorrect. 3. We may speak only of greater or smaller pneumonic masses, and not of lobar and lobular pneumonia. 4. Inflammation of the lung essentially consists in a lesion of tissue, not yet sufficiently examined, which leads to the exudation of leucocytes from the blood-vessels into the pulmonary alveoli, and to further metamorphoses of the extravasated corpuscles. 5. The admixture of fibrin with the exudation which occurs in inflammation of the lungs is not essential and characteristic, but must be looked upon as accidental, and determined, not by the form of the inflammation, but by conditions yet unknown to us, perhaps by peculiarities of epidemic, individual, or excitant of the inflammation. 6. The chief stress in the distinction of the forms of pneumonia must be put upon the etiological momentum of it. This plays the chief part in determining the course and consequences of the inflammation of the lung. The pneumonia of children may arise either spontaneously, from changes in the weather, and attacking otherwise healthy subjects, which in children is the less common case, the course of the disease being eminently cyclic, and ending for the most part favorably; or, as a result of other conditions which predispose to tissue changes in the alveoli. These conditions are: progressive bronchial catarrh, block-age of the finer air-tubes by plugs of mucus, foreign bodies, etc., and general debility causing imperfect expansion of the lungs. To the last class belongs pneumonia coming on in chronic diarrhœa, chronic suppuration, etc., and hastening death. Hence two forms of inflammation of the lungs may be distinguished, the genuine and the secondary. Genuine pneumonia, without being always croupal and lobar, yet answers to these in its violent and cyclic course; secondary pneumonia ranks itself with catarrhal pneumonia in its course, without being identical. This distinction holds good not only in the appearances before and after death, but also in therapeutics; genuine pneumonia requiring an expectant method of treating symptoms, whilst tonic and stimulant means must be employed against the secondary form.

Treatment of Acute Tuberculosis in Children.

In a lecture given in the *Medical Times and Gazette*, October 17, 1874, Dr. EUSTACE SMITH, says:—

In the treatment of acute general tuberculosis, little, unfortunately, can be done after the disease is fully established. It is only while the child is as yet free from the complaint, but when from family history or other cause we have reason to apprehend its occurrence, that we are able often to do much in preventing the development of this fatal illness.

If other children of the same parents have died of acute tuberculosis, very careful attention should be paid to the diet and general management of those who are left. A judiciously arranged dietary—avoiding excess of farinaceous food, on account of its tendency to promote acid dyspepsia—regular meals, early hours, airy bedrooms, plenty of fresh air and exercise, and plenty of sleep, are all matters to which our care should be directed.

Such children are often very active mentally as well as physically, and it is important that the brain should not be unduly exercised or excited. A midday sleep should be enforced as long as possible, as, by this means, the brain is insured a necessary amount of repose. It is well, also, in such cases not to be too precipitate in forwarding the mental culture of the child. The lessons at first should be easy and short, and every care should be taken to avoid undue strain upon the faculties, so that the nervous system may not be overtasked.

In the selection of a residence, attention should be directed to the character of the soil; preference should be given to sand or gravel, and low-lying clay lands are, if possible, to be avoided.

An infant may be nursed by the mother if she herself be healthy and her milk suitable to the child; if not, a good wet-nurse should if possible be provided.

All digestive arrangements should receive early attention, and in particular looseness of the bowels, however apparently trifling it may be, must never be neglected, as no functional disorders to which children are liable have a more immediate and depressing influence upon the processes of nutrition. Inflammatory chest affections also should be treated with the greatest care; and in the case of pleurisy early paracentesis is advisable, if at the end of three weeks from the beginning of the disease no signs of removal of the effused fluid have been noticed. The outbreak of any of the acute specific diseases should be regarded with very great anxiety, and for some time afterwards careful watch should be kept over the patient, so that the occurrence of any subsequent symptoms may be met by suitable treatment. In cases where the means of the parents permit the expense, change of air for a time to a dry and bracing but sheltered spot is of great value, and will do more than any amount of expenditure in drugs to remove the risk of after ill consequences. This is especially true in the case of measles or hooping-cough.

When the disease has actually declared itself, no drugs appear to have any influence upon its progress, or any power in preventing a fatal termination. We are obliged to content ourselves with the treatment of symptoms and of the secondary complications to which the disease almost invariably gives rise. It is highly desirable to reduce the pyrexia, as it is to this that the wasting is principally due. But unfortunately remedies which are found to lower the temperature in inflammatory chest affections have but slight value in cases where the fever is symptomatic of the formation of the grey granulation. Quinine and digitalis—drugs which are so useful in pneumonic phthisis—are here of little avail; and the hypophosphites, whose influence in the same cases appears sometimes to be almost magical, are of no service in acute tuberculosis. Iron and tonics generally appear to have no other effect than that of increasing the patient's discomfort; while cod-liver oil is very apt to derange the stomach, and if it agrees is seldom of any benefit. I have never seen a case of acute tuberculosis arrested or even retarded by cod-liver oil. We can do little more than place the child in an airy room, supply him with a diet regulated with a due regard to his powers of digestion and the irritable condition of his bowels, order a mild saline, such as the citrate of potash, and wait for special symptoms to declare themselves.

The diarrhœa, which is so common in this disease, is not always readily arrested. During the earlier period of the illness, when the looseness probably depends upon mere functional derangement, it is amenable to the milder astringents, and may be stopped by a few doses of aromatic sulphuric acid with a small quantity of laudanum; but afterwards, when inflammation or ulceration of the intestinal mucous membrane is present, stronger measures are required, and we must have recourse to lead and opium, gallic acid, and other remedies, such as are found useful in an adult suffering from the same complication.

Inflammatory chest affections, when they occur secondarily to tubercle, must be treated in exactly the same way as if the complication were the primary disease; but if we are satisfied of the correctness of our diagnosis, we can have little hope that treatment will have any influence in retarding the fatal issue.

When the disease assumes the form of tubercular meningitis, care should be taken to keep the head cool and the feet warm, and to act upon the bowels by suitable aperients. The head must be shaved, and a bladder of ice be kept constantly applied to it. The ice should be broken up into small pieces, and all air should be squeezed out of the bladder before closing it up, so that the latter may fit like a cap upon the shaven scalp. Other applications to the head, such as leeches or counter-irritation by blisters or irritating ointments, appear to be actually injurious, and to have no other effect but that of hastening the fatal termination. If the feet are cold, they should be warmed by hot bottles. The diet of the child should consist of beef-tea, milk, yolk of egg, and, as he becomes weaker, the brandy and egg mixture.

The best aperient is a combination of calomel and jalap, and the action of the bowels may be assisted by enemata. The only other drugs from which any good ever seems to result are the iodide of potassium and perchloride of mercury. Recovery has in some cases been known to follow the employment of the iodide in large doses, but such cases in all probability were not cases of true tubercular meningitis. A simple meningitis at the base of the brain might present symptoms differing little from the tubercular form of the disease, and there is reason to think that a syphilitic inflammation of the cerebral membranes is occasionally mistaken for tubercular meningitis.

In tuberculosis of the peritoneum, when pain and tenderness are complained of, the child should be at once confined to his bed, a succession of hot linseed-meal poultices should be applied to the abdomen, and perfect quiet should be enforced. If the pain be very severe at any particular point of the belly, a leech or two may be applied, but care must be taken to arrest the bleeding early, so that the strength of the child may not be reduced. Diarrhœa must be treated by opium and astringents, and the diet should consist principally of milk and broths. If the case be seen early, this treatment may have the effect of quieting the symptoms for a time, so that the child may appear to recover. When the case is more advanced and the symptoms are severe, with rapid wasting and high fever, the condition of the child is hopeless. Little more can be done than to endeavor to relieve the pain by hot applications and the administration of opium by the mouth or by hypodermic injection. When the strength begins to fail, brandy and egg mixture should be prescribed.

On Continued Fever in Children.

Dr. G. G. TYRRELL, of Sacramento, says of this disease in the Pacific *Medical and Surgical Journal*, September, 1874 :—

The fever that is now met with so frequently among children, is a simple continued fever, verging upon typhoid, with well marked remissions, and still not in my opinion, either typhoid or remittent fever, yet frequently confounded with one or the other. The disease in question attacks children from three to twelve years of age, irrespective of the condition of life or manner of living ; invading the mansion of the rich, as well as the hovel of the poor ; running its appointed course guided by the same unerring laws, whether its victim be pillowed on a bed of down, or laid upon a pallet of straw. It is not contagious or, as far as my experience goes, infectious, a single member of the family being attacked and passing through the disease without communicating it to any other member.

The fever usually runs its course in twenty-one days, sometimes a week under that time, but seldom over. It is not very fatal and its invasion is insidious. Usually the very first symptoms noticed are, that the child loses its cheerfulness, refuses to play, throws itself in its mother's lap, is listless, its appetite fails, while sleep is disturbed and its rest is broken—and all this without any apparent cause ; as no fever has as yet appeared, as far as the mother's observation goes. In a day or two, if the child is old enough, it complains of its head aching, or its stomach paining, perhaps vomits once or twice or has a sudden attack of diarrhœa ; it complains of pains in its legs or arms, and as evening approaches the mother notices, perhaps for the first time, that the child's skin is dry and hot, attributes this to something it has eaten, gives it a dose of castor oil and is surprised that the child is not any better in the morning, but on the contrary is more dull, fretful, and sleepy, shows no anxiety to get out of bed, and objects to being moved ; motion evidently causing pain, or at least soreness by contact.

By the end of the first week fever has assumed a marked form, the head is hot, skin dry with a temperature that feels pungently warm, giving a thermometric range of 101° to 102°, at noon. The face is slightly flushed but not to any remarkable extent ; the countenance is indicative of apathy and indifference ; the carotids throb and the pulse ranges over a hundred, while the nervous system evinces its disturbance by twitchings of the muscles and startings during sleep. As evening approaches the face becomes flushed, the pulse rises, the temperature increases to 140°, and sleep is interrupted or accompanied by delirium of an active character. When morning dawns, the temperature falls a degree or two, but not nearly to its normal range; the flush subsides from the face; the delirium ceases, and the child, mayhap, has a few hours tranquil sleep, from which it awakens with the same listless, dull look, and languid eye so frequently seen in continued fever, no matter of what type. The vomiting has now ceased, if it before existed, and the bowels remain usually slightly constipated; if, however, the bowels are moved naturally, the motions are liquid, dark in color and most offensive in odor. The tongue is coated with a thick, yellowish fur and is inclined to dryness, with the tip and sides preternaturally red. The thirst is very urgent and water is the only liquid sought. The skin is dry and harsh, and the abdomen is commencing to show signs of intumescence.

From the well pronounced nocturnal fever, it is not unnatural to fall into the mistake of supposing that you have a remittent fever to treat, and you are consequently induced to give quinine in sufficient doses, as is said, "to break it up." As a result the child vomits; you try it again in another form with the same result. Then you are obliged to give sedatives to settle the stomach; that done, perhaps you succeed in getting efficient doses of quinine retained, but the fever does not abate; on the contrary the nervous symptoms are increased, the child complains more of its head, the tongue is fouler and drier, and the somnolence is greater than ever. The mother tells you "the child sleeps all the time," and she is quite anxious to know whether you do not think its brain is affected, and not without reason. The child has vomited frequently, it is sleepy, its bowels are torpid, and it has delirium, all symptoms of brain disease. It lacks however some of the characteristics of brain trouble, which we shall notice hereafter.

On endeavoring to rouse the patient from its sleepy and apathetic condition, you notice, if you are observant, that your patient is deaf, and in addition thereto, has a short cough, which is a frequent symptom, although by no means a constant one in this disease. Throughout the second week of the fever the temperature varies but little, being perhaps a degree higher in the evening than in the morning—the morning temperature ranging generally from 102° to 103°. The tongue is still thickly furred, the thirst very urgent, and acid drinks are eagerly sought. The pulse, although its rapidity is not increased, yet loses volume, and emaciation is becoming quite remarkable. The belly is now somewhat tender on pressure and decidedly tumid, the bowels are easily moved or perhaps move spontaneously, the motions being brown and offensive. The skin is beginning to show some moisture on its surface, and a careful inspection will discover sudamina over the pectoral muscles or in either ilium, which soon become general over the chest, neck, and abdomen. Sleep is not so disturbed, and the delirium is of a milder character.

About this period of the disease the child does not refuse nourishment and rarely objects to medicine, the sense of taste being evidently blunted. The apathy and somnolence are still well marked, and the prostration extreme; the hands and limbs are weak and tremulous, and support has to be given to raise the little patient in bed.

Towards the end of the third week convalescence is noticed to begin, its first indication being, in my experience, a sound night's sleep, which seems to be a sort of crisis. The mother always remarks it, and tells you her child has had the only sound sleep for three weeks. Next, the tongue begins to lose its red tip and edges, and its dorsum becomes moist and white. The abdomen loses its tension and tenderness, becoming soft and flaccid. The sudamina dry up and leave the skin somewhat rough and scaly. The evacuations from the bowels become more natural in color, and lose their extremely offensive odor. The temperature slowly falls, quite in contrast to the defervescence seen in typhus fever; delirium subsides and light food is relished; a desire to be amused is also evinced, and a neglect to instantly obey its every whim is lustily resented; the hitherto neglected playthings once more become objects of interest, and the feeble arms try again to hold the familiar toy. Thus improvement, almost imperceptible, continues from day to day until perfect restoration to health takes place.

Treatment.—Having waited a day or two and formed your conclusions as to the nature of the disease, the question arises how are you to treat it? The question is answered in a few words. The first indication is rest in bed; and this is a point that should be insisted upon, because you will meet many cases in which the disease is apparently so mild that the child will wish to get up to be dressed, and even walk about. The second indication is good air and sufficient nourishment, in the shape of gum arabic water, barley water, or linseed tea acidulated with lemon juice, as a common drink, and as more substantial nourishment, beef-tea and milk. Indeed, I think that a diet of milk, when it agrees with the child, is the simplest and best of all.

In the way of medicine, my usual prescription is a diaphoretic of nitrate of pottash spirits of nitrous ether, syrup and the liquor acetatis ammoniæ, given every three or four hours during the exacerbation of fever, to each dose of which I sometimes add a drop of tincture of aconite root. If the bowels are positively constipated, I frequently order either a small quantity of seidlitz powder or infusion of senna with manna.

During the second week, when the tongue is very much coated and pasty, I omit the diaphoretic and substitute therefor a mixture of either dilute hydrochloric or nitric acid, with compound elixir of cinchona and syrup of wild cherry, a teaspoonful of which is given every four hours. This the child takes readily, with apparently great benefit, as it tends to assuage thirst and gives the tongue a cleaner appearance. When convalescence is being established, I give quinine in tonic doses, as then it seems to act as a toner of the nervous system and lessens prostration. Conjoined with these remedies, I permit, in the latter stages of the disease, a little fresh fruit, if desired, also small quantities of egg nogg or wine, rice pudding or blanc mange—carefully watching their effects upon the alimentary canal.

Ovarian Tumor in a Child.

The following rare case is reported in the *Richmond and Louisville Medical Journal,* December, 1874:—

Julia Young, seven and a half years of age, of healthy parents, herself having previously enjoyed good health, but of a nervous temperament, and convalescing from a severe attack of whooping-cough, was brought to me on the 16th of June, '74, to be prescribed for, for a swelling in the belly. The swelling was discovered by the mother three months previously. She (the mother) described it as "a fullness or lump in the left side, which has continued to increase."

On the date before-mentioned, I elicited the following: For the past few days the swelling has increased in size; the child complains of cramps in left lower extremity; in fact, so severe are these cramps that she has been awakened from her slumbers by them.

On inspection, I found the superficial veins on the left side of abdomen somewhat enlarged, and a tumor, ovoid in shape, movable, and free, occupying a space from three inches above to three inches below the umbilicus in the mesian line. It presents the appearance of a miniature gravid uterus, fluctuation distinct on left side, whilst there is dullness on percussion on opposite side.

My diagnosis is, "Cyst of Left Ovary." I ordered the child to have castor oil and turpentine. After the action of the purgative, the salient features of the tumor became more distinctly marked.

On the 17th of June, the day following, I introduced trocar and gave exit to about half an ounce of thick albuminous fluid, clear, but dark. The flow ceased in consequence of the increased viscidity of the fluid obstructing the canula. My diagnosis was now confirmed, and I determined to extirpate the tumor so soon as the patient should be more fully relieved of the pertussis. I therefore ordered her return in fifteen days (the parties live in the country).

On the 23d of July, the patient returned for operation. The tumor was enlarged, and occupied a position regarding the left hypogastrium, having passed the mesian line.

July 25.—The tumor to-day occupies an oblique position between the left hypogastrium and right hypochondrium; the position having changed in the last twenty-four hours. It is tense, tender, and doughy. The child's general health is good; her cough still troublesome at intervals, and at times very severe. I ordered her to have half ounce of castor oil, with a view to evacuate the bowels prior to operation, which I set for to-morrow.

July 26.—Aided by Drs. A. E. Carothers, of Saltillo, Mexico, F. Paschal, T. R. Chew, and A. Ansell, I proceeded to the excision of the tumor.

I made an incision two and a half inches long, a line or two to the left of the mesian line, severing severally the integument, fascia, aponeurosis, and peritoneum, and exposed the tumor, which now became very prominent. Introducing my finger, I found the tumor free from adhesions. I then extended the incision two and a half inches more—that is to say, one and a half inches upward and one inch downward—making the wound five inches in length. At this moment vomiting set in with such violence as to cause the extrusion of the whole of the small intestines, which were carefully enveloped in flannels dipped in warm water, to which had been added liquor potassæ permangan., and there retained until after the removal of the tumor. This untimely vomiting was due to the parents having given milk punch instead of a small toddy, which I ordered to be given an hour previous to the operation; this caused a delay of about fifteen minutes.

The tumor was now punctured with a "trocar of Ponteau," and its fluid contents drawn off in such a manner as to effectually prevent any escape into the abdominal cavity. The pedicle being thin, and the condition of the parts apparently favorable for enucleation, an attempt was made to strip off the investing membrane, but it proved to be too delicate to bear entire removal; the pedicle was, therefore, secured by a single carbolized cat-gut ligature, divided, and returned within the cavity. With considerable difficulty I returned the intestines, and closed the wound by six deep silver-wire sutures, including in these the peritoneum, and five superficial twisted sutures. The operation was concluded in sixty minutes, during all of which time the little patient was fully anæsthetized by chloroform. The whole quantity of the anæsthetic consumed in this operation was three drachms by weight. The pulse continued good throughout. The wound healed promptly, and the patient recovered.

SURGERY.

I. GENERAL SURGERY.

Treatment of Anthracose Diseases.

The New York *Medical Journal*, November 1874, states that at a meeting of the Academy of Sciences of Paris, July 27, 1874, M. Banly presented, in the name of M. Cézard, a memoir on the treatment of anthracose diseases in man and animals by a method called "antivirulent."

This method of treatment is based on experiments reported to the Academy by M. Davaine, in October, 1873. A young man, a tanner, having become infected from some skins prepared in his shop, noticed an anthracose œdema of the palpebræ. This affection is usually considered fatal in that country, hence a consultation was called. M. Cézard, at the suggestion of M. Davaine, treated the case by hypodermic injections of iodine solution of $\frac{1}{500}$. The patient soon recovered. The same treatment was also adopted with success in subsequent cases. The germs of this disease, when it is epidemic among animals, may be destroyed by sprinkling the forage or the pastures with $\frac{1}{5000}$ solutions of sulphuric acid. In using the antivirulent treatment, the system must also be well supported by stimulants, among which the carbonate of ammonia in large doses is the best. In using iodine, twice its weight of iodide of potassium is to be added, to increase the solubility and diminish its irritating properties. In extreme cases, the intravenous injection of iodine may be resorted to without hesitation. The treatment of these diseases by the actual cautery, or by cauterization with concentrated solutions of sublimate, is not in accordance with the progress of science, and is very inefficacious.

Malignant pustule should be treated in the commencement by the incision of the eschar and the application to the seat of the disease of compresses soaked in a $\frac{1}{100}$ solution of iodine and iodide of potassium, which will in a short time have penetrated by imbibition and absorption to all parts of the viruliferous tissues, and will thus soon produce a rapid and radical cure. There will be little if any loss of substance. It has been found by experiment that a $\frac{1}{12000}$ solution of this liquid will soon destroy the virulence of anthracose fluids without the organism, and a much weaker solution can prevent and even destroy its virulence within the organism.

Lister's Treatment of Rodent Ulcer.

At a meeting of the Medico-Chirurgical Society of Edinburgh, reported in the *Edinburgh Medical Journal*, September, 1874:

Professor Lister made an oral communication on a case of rodent ulcer, and a new antiseptic dressing suitable for such cases. The ulcer was of large size, on the face of a man forty years of age, and presented the clinical characters of smoothness of the surface of the sore, with scantiness of discharge, and a definite but very narrow border of surrounding induration, free from inflammatory appearance, with painlessness, perfect general health of the patient, and absence of any affection of the lymphatic glands, although the disease had existed for eight years. The sore having been removed by the knife, presented on section an indurated base from $\frac{1}{20}$ to $\frac{1}{8}$ inch in thickness, of pink homogeneous aspect, and destitute of the ordinary appearances of epithelioma, but presenting in a well-marked form the "prickle cells" of Max Schultze, which indicated that, in this instance at least, the rodent ulcer was a variety of epithelioma. As in the case of epithelioma generally, the cells presented their characters in an exaggerated form; and specimens of the "prickle cells" with large nuclei and interdigitating processes locking cell to cell, were exhibited under the microscope.

The disease involving a large extent of the cheek, both eyelids, both nostrils, a considerable portion of the upper lip and part of the lower one, it was impossible to cover the raw surface by a plastic operation. It was therefore of importance that efficient antiseptic means should be employed; for there is no more simple or more striking illustration of the value of this principle of treatment, than the entire absence of inflammatory disturbance around an open wound when putrefaction is really prevented from taking place in it, the "stimulus of necessity" of John Hunter being, in truth, simply the stimulus of putrefying substances, so that the danger which usually attends open wounds is entirely avoided by efficient antiseptic measures. But the antiseptic dressing usually employed, consisting of gauze impregnated with carbolic acid, and a layer of prepared oiled silk interposed to protect the raw surface from the irritation of the acid, would have been unsuitable here, because putrefaction would have spread from the mouth and nostrils beneath the "protective," which, while it excludes the irritation of carbolic acid, prevents in equal degree the penetration of its antiseptic virtue. In cases like the present, where causes of putrefaction cannot fail to gain access to some part of the wound, the antiseptic must be applied directly to the divided tissues, while at the same time it is desirable that it should be as little irritating as possible, so as not to interfere with cicatrization. These conditions were fulfilled very satisfactorily by means of an ointment, composed as follows:—Boracic acid in fine powder one part, white wax one part, paraffin two parts, almond-oil two parts. The ingredients, after being mixed by melting the wax and paraffin, are stirred in a warm mortar till the mass thickens, and then set aside to cool, after which the firm substance is reduced in a cold mortar, in successive portions, to a uniform soft ointment. This is spread thin on fine rag, and when the almond-oil leaves it, as it soon does through capillary attraction of the porous external dressings, a smooth firm layer remains, consisting of blended wax and paraffin, together with the boracic acid, which comes off from the skin without leaving any greasy substance adhering, and does not at all confine the discharge, which, while freely shed, is perpetually supplied with a sufficient quantity of the boracic acid to ensure absence of putrefaction, while not preventing cicatrization. Such was the dressing employed in the present case, and it was beautiful to see the large raw surface, though involving such sensitive structures, yet perfectly free from surrounding redness or puffiness, while the patient, except for a short time during the day of operation, experienced no uneasiness whatever.

It may not be out of place to mention here, that still a better application for cases of this kind is presented by an ointment composed like that above described, except that instead of one part of boracic acid, it contains half the quantity of salicylic acid, the antispectic virtues of which have been quite recently discovered by Professor Kolbe, of Leipzig, who has also found out a method of manufacturing it cheaply.—Vide *Journal für Praktische Chemie*, 1874. Messrs. MacFarlan & Co., of this city, by slightly modifying Professor Kolbe's process, are now prepared to supply the acid in a state of perfect purity at a very moderate price. Salicylic acid, while possessing very remarkable antiseptic power, is even less irritating than boracic acid.

The Treatment of Cancer.

Dr. B. Rhett, of South Carolina, says in the Charleston *Medical Journal and Review*, October, 1874:—

Thomas Christian, a bar-keeper, in the town of Abbeville, consulted me, in the summer of 1872, on account of a small tumor upon the lower lid of the right eye. An ulceration or abrasion had appeared some eighteen months before this time, and shortly after this warty growth had sprung from its surface, and steadily increased It was somewhat larger than a large sized snap-bean, large buck-shot, or small pistol-bullet, warty, with slight discharge, keeping it generally moist and partially covered with soft material, formed of detached epithelial scales—it bled easily, and around it were abrasions or small ulcerations, covered with the same soft material as scabs. There was also a small warty growth on the left lower lid. The right lower lid was somewhat infiltrated. Some pain and stiffness of the lid complained of, but the pain was not excessive.

The man was stout and strong, with black hair, blue eyes, and a coarse skin. From the nature of his occupation, and his appearance, I should judge that he consumed a quantity of bad whisky, but there was no history of cancer in his family, that I could ascertain, nor any sign of syphilitic taint in himself—there may possibly have been a scrofulous taint, but it was not ascertained.

He had consulted several medical men, and been treated by one with iodine, but without relief, as the growth underwent a steady increase up to the time of my seeing it. My attention having been drawn to cases of carcinoma of the cervix uteri reported by Dr. Winn Williams, as successfully treated by bromine, and that his observations were confirmed by Dr. Routh, I resolved to try the treatment upon this growth, which I regarded as an Epithelioma. Accordingly, I injected with a Hypodermic Syringe, a few drops of

Bromin.,	gr. xij.
Spirit. Rectificat,	ʒj.

and touched the surface of both growths occasionally with the same, until they were brought to a level with the surrounding integument. I then used a weak solution of the same upon the spots where the growths stood, and upon the abrasions around —and put the patient on the internal use of Fowler's solution. Under this treatment the ulcerated and abraded spots healed in the course of seven or eight weeks—in spite of his using, when the parts had nearly cicatrized, some dirty mixture sold as "Turf Oil." The parts remained healed and sound when last seen, some fifteen or eighteen months after cicatrization.

The next case was that of an aged woman, Mrs. R., living about three miles from Abbeville Court House, upon whose forehead, over the right eye, were seated two projecting fungoid growths, about the size of a couple of "quarter dollars," touching at their edges, bulging out about the fourth of an inch from the level of the skin around, forming two dark red growths, the surfaces of which were occupied by coarse granulations flecked with black hemorrhagic spots, and bleeding upon the slightest handling. There was considerable pain on that side of the head, extending back to the occiput, not present all the time, but intermittent. The growths were soft and spongy—they were of one or two years' standing, and were steadily increasing in size.

The patient was eighty years of age, fat and hardly able to walk, and subject to a chronic looseness of the bowels, from weak digestive powers and a good appetite. There was a history of frequent occurrence of Cancer in her family.

These growths were clearly, to my judgment, Encephaloid Cancers, and I varied the treatment, at first using a weak solution of the bromine, as a wash or lotion. I applied the chlorate of potassa in powder to the surface—not on account of any experience I had had with the remedy, but because I had seen that Dr. Buron, of Königsburgh, had met with success in the use of chlorate of potassa in treating Cancer, and that his experience had been confirmed by Dorger, of Hamburgh, Debout, Lebbane, Charcot, Cook, Delpech, Wishom, and others. I tried to give Fowler's solution internally, but the old dame objected to taking physic every day, and said it aggravated her diarrhœa. After a week or ten days' use, it was dropped, So, also, was the solution of bromine, and for about three months the chlorate alone in powder was used. After that a strong solution of the chlorate was applied, as Mrs. R., being old and childish, complained bitterly of the pain of the application.

This solution was continued alone, until the parts were thoroughly healed, and all threats of renewal had ceased.

The period of time she was under treatment was somewhat over five months before satisfactory cicatrization occurred, leaving two small scars, about one-fourth to a half inch apart.

The action of this remedy, I fancied, had something peculiar in it; it was not that of a caustic cutting away the granulations, but rather that of an alterative astringent to the granulations themselves, shrinking them, and changing their color from a venous to more of an arterial hue, from a large full fleshed raspberry to a small, close grained strawberry. I would not say that the growths were cut away by caustic action, but shrunk away by contraction of their component elements, until two small smooth nodules were left, which finally subsided into two small white cicatrices, and these cicatrices remained unbroken up to my departure from Abbeville, a period of several months.

With regard to the third case, I was consulted by Dr. Gurley, a dentist, concerning a hard excrescence or tumor, situated in the mouth and filling up the cleft between the inner side of the gum and the base of the tongue, and extending from the canine tooth to near the angle of the maxilla. It was as large as a large pecan nut, and along two-thirds of its length extended an ulcerated line or crack, the edges of which were fringed with sharp white projections or spines. This tumor was in the mouth of Mary Durant, a colored woman, living at Willington, Abbeville County. From its close adhesion to the periosteum I pronounced it a malignant epulis, and advised its extirpation, and that the alveolar portion of the maxilla, from which it apparently sprung, should be removed. Dr. Gurley kindly turned the case over to me, and with the assistance of Drs. Parker, Yates, and Thomson, I operated, cutting away what I supposed was the diseased portion of the maxilla, and dissecting the growth from base of the tongue. But I am disposed to think that I was mistaken in my diagnosis, and that the disease was Epithelial Cancer attacking, it is true, the gum, and apparently the periosteum, but also the soft parts. My reason for thinking so, was that the disease returned in the soft parts at each extremity of the bed from which the growth had been dissected, but never involved the periosteum again, and I am inclined to think that the fissure of ulceration was Whaton's duct laid open by the disease, and that the escape of the gland secretion through the fissure, caused the white appearance noticed. The disease, as I said, returned at each extremity to the dissection. The portion in the fore part of the mouth I succeeded in eradicating by bromine and chlorate of potassa; the portion extending backwards towards the sub-maxillary gland, although I used bromine, chlorate potassa, nitrate of copper, and caustic potassa, in substance, remained uneradicated. When the case was last seen, early in March, there still was a white ulcerated line from a fourth to a half inch long. The pain, darting in character, and especially troublesome at night, still continued, and although I could detect no enlargement nor induration of the gland, I am satisfied the disease extended back to the gland, if it did not involve it.

Bloodless Surgery.

Dr. Fr. Esmarch, Professor of Surgery in the University of Kiel, in an address reported in the *British Medical and Surgical Journal*, October 17, 1874, says:—

During my visit to England and Scotland, I have often found occasion to speak with other surgeons on bloodless surgery. I found that some were but imperfectly acquainted with the method; that others applied it, but not in the right manner; that others again attached no importance to the avoidance of hemorrhage during an operation.

I lately compared the results obtained in my practice after operations performed bloodlessly with the recently published results of operations performed by other surgeons, and I found that my results were much better than the best of these, including even those in which the antiseptic method had been strictly followed. But you may very properly object to this, that it is not conclusive to compare the statistics of other hospitals or surgeons with my own, because the circumstances in different hospitals, and the cases as well as the treatment are so different, that they do not admit of comparison without a detailed account of the individual cases.

Much more important, undoubtedly, must be the comparison between cases occurring in my own practice and performed in the same hospital previously to the application of the bloodless method and afterwards. This comparison I am able to offer.

I put together the statistics of the operations I performed during the last six years, and have found the most striking results. I shall only mention to you, as an example, the statistics of the amputations of the thigh and the leg. Of 88 amputations of the thigh performed in the first five years, there died 37, or 42 per cent. Of 67 amputations of the leg, there died 19, or 28.3 per cent. After the adoption of the bloodless method, there died, of 13 amputations of the thigh, only 1; and of 12 amputations of the leg, only 1; so that the proportion of fatal cases in amputations of the thigh and leg together is brought down from 36 to 8 per cent.

Even admitting the error which may result from the difference of the numbers compared, I am of opinion that these statistics afford such striking evidence of the value of bloodless surgery, that no one should neglect this method in cases to which it is at all applicable. Nor should its use be limited to operations on the extremities, but it should be extended to other regions with such special modifications as each case may require. For instance, I at one time believed it to be impossible to use it in amputations at, and in excisions of, the shoulder-joint; but a few trials showed nothing to be easier. For these operations, it suffices to pass the elastic tubing under the arm-pit, and to have it tightly held over the shoulder by the hand of an assistant, replacing the latter by a clamp in more protracted operations. In some cases, however, compression by aid of the elastic tubing does not suffice to prevent the afflux of arterial blood, and in these, other means for the prevention of hemorrhage must be resorted to. Allow me to detail a case of this description. In the course of last summer, a man between fifty and sixty years of age, with a tumor of the size of an ostrich's egg filling his right armpit, was admitted into my hospital. The tumor had attained this size in the course of two years; and, as it caused great pain, and quite incapacitated the patient from work, its removal at all hazards was wished for. The tumor was firmly wedged in between the chest and shoulder-blade, to the anterior serface of which it seemed to adhere, all movements of the scapula being communicated to the growth, which was unaffected by rotation of the head of the humerus. The presence of severe pain in the arm led to the supposition that adhesions existed between the growth and the nerves of the armpit. Microscopic examination of a piece of the tumor removed by means of an exploring trocar showed it to be a myxosarcoma. Growths of this nature are known frequently to take their origin in nerve-sheaths; and, as risk of rapid relapse in such cases can only be obviated by the operation for their removal including the surrounding tissues, even if these be apparently healthy, I considered that indications existed for removal of the whole arm with the scapula. The elastic tubing could not be applied in this case, nor could other means of compression be resorted to, as the pulsation of the subclavian artery was not to be felt, the tumor having pressed the shoulder upwards, and thereby considerably deepened the supraclavicular fossa. I therefore determined to tie the subclavian artery. I commenced by bandaging the arm up to the shoulder with elastic webbing, and then removed the outer two-thirds of the clavicle, for the purpose of exposing the artery, a course rendered necessary by the altered relation of the parts. Both subclavian artery and vein were then ligatured and divided. The cords of the brachial plexus, which were tensely stretched, and which partly entered into the substance of the tumor, were then cut through. I then made anterior and posterior skin-flaps, and quickly removed scapula and arm with hardly any loss of blood, only a few vessels in the divided muscles requiring ligature. The wound was united by sutures and dressed with carbolized oil. The reaction was moderate, and healing was nearly completed at the time of my leaving Kiel.

The applicability of the bloodless method is, however, not limited to the extremities. Tumors situated in other parts of the body, provided they be superficial, can also be removed without hemorrhage. For instance, in operating upon erectile tumors of the scalp in children, all bleeding can be prevented by compressing the surrounding parts by means of steel rings mounted on handles. In operations on the trunk, the same object can be attained by a thick ring of India-rubber secured by elastic tubing. Operations on the male genitals can also be performed bloodlessly by the employment of a slender piece of elastic tubing, made to encircle the root of the penis and scrotum. It was thus possible for me, for instance, to perform the following operation, the execution of which I should not have attempted under former circumstances.

Last winter, an old man presented himself for admission, suffering from epithelial cancer of the penis of several years' standing. The anterior surface of the scrotum, and the penis within an inch of its root, presented a mass of cauliflower excrescences about the size of the palm of the hand, the seat of offensive discharge, and the occasional source of copious hemorrhage. There was a narrow fissure in the centre of the growth, through which urine was passed with difficulty. The inguinal glands on both sides were enlarged and adherent. The patient was so weak and anæmic that I could not have ventured on operative interference in his case without the bloodless method. With its aid, however, I was enabled fearlessly to undertake an operation, the immediate effects of which were most satisfactory. I began by passing a piece of elastic tubing of the thickness of a little finger round the root of the penis and scrotum; I then crossed it over the symphysis pubis, then passed it backwards, crossed it again over the os sacrum, and finally secured the ends over the abdomen. I then removed the whole growth, including the penis and anterior wall of the scrotum, without losing more blood than was contained in the parts prior to constriction; the vessels being easily recognized and carefully secured after division. I then removed, with all possible speed, the enlarged glands, together with the integument, from both inguinal regions; separated the crura penis, which were found to be indurated, from their attachment to the os pubis, dissecting them carefully from the posterior and healthy part of the cavernous body of the urethra; and then divided the posterior surface of the scrotum by a median incision, at the posterior angle of which I fixed the remaining part of the urethra by sutures, and finally covered the wounded surface anteriorly and in both inguinal regions with the scrotal flaps. The old man had lost but little blood, and was very well after the operation. The large wound healed without any bad symptoms.

Varieties of Psoas Abscess.

Mr. Walter Rivington, F.R.C.S., Surgeon to the London Hospital, says in a lecture in the *Lancet*, September 19.

By psoas abscess I understand an abscess which is found inside the sheath or part of the sheath of the psoas muscle. If confined to that sheath, it will correspond exactly to the figure of the muscle, and form an oblong or spindle-shaped and tapering tumor, reaching from the diaphragm to Poupart's ligament, and in many cases prolonged into the thigh. In some instances the abscess also fills the sheath of the iliacus, and it ought then to be called an ilio-psoas abscess. If solely developed within the sheath of the iliacus, it would then, and then only, be entitled to the name of iliac abscess. Under the terms iliac, psoas, and ilio-psoas abscess, I would not include, as is sometimes done, abscesses formed over the muscles, but not within their fascial investments.

At post-mortem examinations, when we have an opportunity of seeing these abscesses early, and before the discharge of their contents, we may observe that the fascial sheaths under which they lie are distended and clearly defined by the purulent fluid; but when the case has been of long duration, and the matter has been constantly draining away from openings in or near the groin, we may merely find a long sinus or sinuses traversing and tunneling the atrophied muscle from the vertebræ to the lower apertures of the fistulous tracks. Should the abscess originally existing have undergone partial absorption and alteration, we may discover masses of cheesy material, and in some cases of rarer occurrence adipocere. Mr. Corner, of Poplar, found adipocere in the sheath of the psoas muscle, in a case ending fatally from some other disease having no connexion with the original psoas abscess; and Mr. Bryant, who for some time regularly examined the psoas at the post-mortem examinations at Guy's Hospital, found on several occasions the degenerated cheesy material indicative of a psoas abscess having existed at some previous period of life.

The mode of development and the ordinary phenomena of psoas abscess are very familiar to surgeons. In the majority of cases it arises from caries of the lower dorsal or lumbar vertebræ, or disease of the intervertebral discs. When it is caused by disintegration of the bodies of the dorsal vertebræ and the intervening fibro-cartilages, a large abscess is first formed in front of the excavated spine, and as the abscess increases in size it gravitates downwards, and finds its way under the ligamentum arcuatum internum into the substance of the psoas muscle. It then gradually works its way downwards to Poupart's ligament, generally expanding outwardly towards the crest of the ilium, and filling the sheath of the iliacus. The next step in its progress is its further descent into the thigh. Mr. Shaw, who has described the mode of development very fully, states that the opening through which the abscess descends is "invariably at one place—namely, behind Poupart's ligament, between the united tendons of the iliacus internus and psoas muscles and the anterior inferior spinous process of the ilium. The situation corresponds with the point of junction of the outer with the middle third of Poupart's ligament." As the abscess escapes from the abdomen it becomes released from compression, and enlarges in Scarpa's triangle. It then generally passes downwards and inwards along the sartorius for a variable distance. "Sometimes, however, soon after its appearance in the groin, it turns sharply inwards to occupy a space over the adductor muscles. In a comparatively rare set of cases it bends outwards. Occasionally the abscess divides at the groin, one portion going inwardly and the other outwardly."* The opening between the abdominal and femoral portions of the abscess is called by Mr. Shaw the neck of the abscess, after the analogy of hernia, and this, according to him, is always on the outer side of the femoral artery. But the statements of other writers would lead us to infer that the abscess does not always follow the route which he has described, but sometimes passes behind Poupart's ligament at a point internal to the junction of the iliacus and psoas. Nor is there any reason suggested by a consideration of the anatomy of the muscles and their fascial sheath for an abscess inside this sheath "invariably" to pass into the thigh at the one spot mentioned by Mr. Shaw. Does it not and may it not sometimes descend behind, and even a little internal, to the femoral artery? However this question may be answered, we find as a matter of fact that the abscess below Poupart's ligament occupies in different cases different relations to the femoral artery. In one case it may be in front, in another on the outer side, in another on the inner side, in a fourth on both sides and in front, and in a fifth behind it and lifting it up, so that its pulsations may be felt, and even seen, immediately beneath the superficial coverings of the thigh. Such a case as the last occurred to Dupuytren, who supposed for a moment that he had to deal with an aneurism, but soon discovered, on examination, that the pulsation was confined to a line along the tumor formed by the abscess, and that the artery had merely been pushed forward by the accumulation of pus behind its sheath.

In cases of psoas abscesses dependent on spinal disease, the matter may accumulate to such an extent that it bursts through the fascia covering the psoas muscle, and travels into other regions. For example, it may leave the psoas muscle in the interval between the last rib and the crest of the ilium, passing to the outer edge of the quadratus lumborum and sacro-lumbalis muscles, to project posteriorly in the lumbar region, or to descend over the crest of the ilium and present in the buttock. This course is considered more likely to be pursued in children, on account of the inferior elevation of the crests of the ilia; and the same cause ought to make it more frequent in women than in men, as the alæ of the ilia do not rise so high in relation to the spine as in the opposite sex. Sir Benjamin Brodie has related a case in which an abscess communicating with the carious surfaces of the seventh and tenth dorsal vertebræ extended downwards, first in the course of the psoas muscle, then backwards on the *inner* edge of the quadratus lumborum, and thence to the nates, where it had burst during life.* From a careful perusal of the whole of Sir B. Brodie's observations, I cannot but think that there is a misprint in the passage, and that it was on the *outer* edge and not on the *inner* edge of the quadratus lumborum that the abscess was deflected. In making this remark I do not wish to set any limits to nature, but merely to express the opinion that it is far more likely that an abscess would be directed to the outer than to the inner edge of the quadratus. Perforation of the quadratus by an abscess has been recorded, and if this has occurred, there is no reason why an abscess should not find its way backwards on the inner edge of the muscle.

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*System of Surgery, Vol. IV., pp. 120-121.

A psoas abscess might leave the psoas muscle, and, passing forwards, find its way along any of the planes of areolar tissue in the anterior abdominal wall; it might travel between the transversalis fascia and the transversalis muscle, or, perforating the transversalis fascia, run along between it and the peritoneum. It has been observed to open outwardly through the abdominal muscles.

Psoas abscesses may bifurcate, one division proceeding to the loin and the other to the groin. Or they may make their way down the inguinal canal, simulating a reducible hernia. Descending from the psoas, they may pass along the sacrum by the side of the rectum, and present in the perineum in the neighbourhood of the anus, or leave the pelvis by the sciatic notch, and appear in the buttock underneath the gluteus maximus, or, gravitating still lower along the course of the great sciatic nerve, reach the back of the thigh, and even the popliteal space. "Occasionally," says Sir B. Brodie, "it reaches the back of the thigh in another way. I have known an abscess to have descended from the loins, and presented itself as a tumor in the groin. Suddenly the tumor has disappeared, and the patient has been led to entertain hopes of a speedy recovery. But these have been soon disappointed in consequence of the discovery of a large collection of matter in the posterior part of the limb behind the little trochanter of the femur. In a case of this kind in which I had the opportunity of examining the morbid appearances after death, I found that the abscess had taken the course of the common tendon of the psoas magnus and iliacus internus muscles to their insertion into the bone, afterwards extending further backwards below the inferior edge of the quadratus femoris."† Sir B. Brodie goes on to say: "I may take this opportunity of observing that it is by no means uncommon, whatever part of the spine may be the seat of caries, to find an abscess thus altering its course, disappearing in one place, and some time afterwards appearing in another."[*]

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* Diseases of the Joints, Case 67, p. 307.

† Op. cit., pp. 334 and 335. The case referred to in the passage quoted in the text appears to be identical with Case 60, reported in Sir B. Brodie's work on the Joints. The patient had been ordered to remain constantly in the horizontal position, and in a short time the tumor formed by the abscess disappeared, and another showed itself over the left os innominatum. It was opened, and forty ounces of the most fetid pus were evacuated. Profuse suppuration continued for three months, and caused death by exhaustion. The abscesses originated from caries of the second and third lumbar vertebræ.

The passage of the abscess backwards to the posterior aspect of the thigh is most likely to occur in cases of caries of the lumbar vertebræ in which the matter forms and descends *behind* the psoas muscle. These conditions were found in Case 70, reported in Sir Benjamin Brodie's work on the Joints. In other cases the abscess pursues a *double* course, part of it lying in front of the muscle and part behind it. In a third set of cases the course may be *multiple*.[†]

If there is an abscess on each side, it is not usual for both to reach the groin; the second generally proceeds but part of the way thither. In a case of Pott's curvature of old standing, under my care at the London Hospital, open sinuses existed on both sides close to Poupart's ligament, and maintained a constant discharge of pus.

When a psoas abscess attains a great size it may be *multilocular*. Mr. Erichsen has recorded a remarkable case, in which "the abscess extended from the lumbar vertebræ through the iliac fossa, down the thigh, the ham, and the leg, until at last it was opened by the side of the tendo Achillis, forming five or six distinct cysts, communicating with one another by contracted channels."[‡]

Psoas abscesses may be attended with several complications. They may form an opening into the rectum or some adjoining portion of the intestinal tube, or become connected with the urinary bladder. Mr. Shaw notices the case of "a girl, thirteen years of age, who had acute angular deformity at the centre of the dorsal vertebræ, and a psoas abscess, of several months' duration, on the left side. The abscess reached down to the knee, the external opening being over the inner condyle of the femur. As a proof that the abscess admitted some of the contents of the intestines into the interior, the patient, during the writer's visit, picked from the orifice the skins of one or two peas and a bit of undressed stalk of greens which she had been lately eating."[§] Mr. Holmes relates a case of right ilio-psoas abscess which formed a communication, not only with the large intestine, but also, by an extension of the same opening, with the cavity of the peritoneum, and thus led to the sudden death of the patient.[||] An equally dangerous complication is a communication with a large bloodvessel. A lad was admitted into St. Bartholomew's Hospital, under the care of Mr. Savory, for a large psoas abscess. He died in a few days with symptoms of collapse. At the post-mortem examination the abscess was found to have opened the abdominal aorta. There was an opening in the wall of the aorta capable of admitting the tip of the forefinger. Around the opening, and projecting into the abscess cavity, was a mass of laminated coagulated fibrine, about the size of a small orange.[¶] A large vein, and especially the vena cava, might be opened in a similar manner; but I am not acquainted with any case of the kind. Caries and necrosis of the vertebræ and the pelvic bones may be the result of the long-continued presence of matter within the sheath of the psoas muscle, or the muscle itself. Destruction of the sacro-iliac joint may be occasioned by it. Below Poupart's ligament a communication may form with the hip-joint; and I am not aware that recovery has been recorded after the occurrence of this untoward complication. Anatomical considerations would lead us to expect that a psoas abscess is most likely to communicate with the hip-joint if it passes underneath the substance of the muscle. In that position it would come in contact with the bursa which lies between the muscle and the capsule of the joint, and sometimes is merely a prolongation of the synovial membrane of the joint. The abscess might readily pass through the thin walls of the bursa, or find its way into the joint by perforating the thin part of the capsule covered by the psoas.

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[*] Op. cit., p. 335.

[†] In a case of Mr. Erichsen's, reported at length in THE LANCET for September 28th, 1872, a psoas abscess existed on each side of the spine—the one on the right side reaching from the third lumbar vertebra half way along the brim of the pelvis; whilst that on the left, which was very much larger and extended into the thigh along the femoral artery as far as the profunda, and a diverticular branch over the crest of the ilium, and a tributary stream which ran along the brim of the pelvis to join the main abscess. The abscesses on the right and left side communicated across the fourth lumbar vertebra. A large gap, containing masses of dead bone, was found between the last lumbar vertebra and the sacrum, and the bodies of the third, fourth, and fifth lumbar and three upper sacral vertebræ were bare. Death was the result of acute tuberculosis, affecting many of the viscera.

[‡] Science and Art of Surgery, vol. i., p. 108.

[§] Art. on "Diseases of the Spine" in Holmes's System of Surgery. 2nd edit., vol. iv., p. 125. A case of "psoas abscess opening spontaneously into the intestine," which was under the care of M. Colin, is related in the *Edinburgh Medical Journal*, July, 1862, p. 68.

[||] Surgical Diseases of Children. [¶] *British Medical Journal*, Feb. 5th, 1870.

At the upper end of the abscess a communication may be formed with the pleura, or it may discharge its contents into the lungs, having entered in a similar way to an abscess of the liver thus terminating. Not only pus but pieces of dead bone have traversed the communicating aperture and been expectorated. Fragments of bone will also work their way from the orifices of spinal abscesses opening in other positions. Mr. Bryant has "seen a mass the size of a nut come away from a lumbar abscess, and a piece of bone, clearly spinal, discharged from an abscess of the thigh opening above the knee-joint."*

A Mode of Employing Pressure in Cases of Inflammatory Enlargement.

Mr. S. M. Bradley, F. R. C. S., Assistant Surgeon to the Royal Infirmary, Manchester, in a paper published in the *British Medical Journal*, September 26, 1874, says:—

My object in this brief communication is to introduce to the profession a mode of employing pressure in certain cases of inflammatory enlargement, which, I think, will prove more efficient and convenient than the methods at present in vogue.

Whether the *modus operandi* of pressure in removing such enlargements be simply due to the support afforded to the weakened vessels, and the too abundant blood, etc., being squeezed from the part, or whether it be due partly to this cause and partly to a stimulation of the lymphatics, forms no part of my theme. I go on the idea that the advantage of pressure in certain cases of inflammatory enlargement and thickening, both acute and chronic, is well established and generally admitted, and, for the sake of brevity, shall confine my remarks to explaining the mode of compressing, 1, the testis; 2, the breast; and 3, various parts of the trunk and extremities, presuming that a little ingenuity will enable the surgeon to adapt the treatment to any other part of the body not specially named.

1. *Mode of Compressing the Testis.*—The admirable results obtained by strapping the testis in cases of orchitis are known to all; but, in spite of this, it is not as frequently practiced as it should be, partly owing to the time it takes, and partly to the fact that if improperly applied, as it is apt to be, it does more harm than good, and, according to Van Buren, has even been known to cause gangrene. Further, there is the trouble of reapplying it every forty-eight hours; for in a short time the dwindling testicle hangs loose in its sticky case, and ceases to derive any good from the strapping.

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* The Practice of Surgery.

The little appliance which I use obviates these disadvantages, and, while it is more efficient than the plaster, it is perfectly easy to apply. It consists of a piece of stout elastic webbing two and a half inches long by half an inch broad; five ends, each half an inch broad, are appended to each side, each of them measuring about one and three quarter inches; the upper and lower being a little shorter than the central pieces. The belt is applied to the back of the unshaven testicle, and laced up in front from top to bottom. The last end, being placed at right angles to the rest, comes up the front of the testis, and is fastened to the first end of the tape, left long for the purpose, and by this means all is made snug and comfortable.* The apparatus is exhibited applied to an egg-pessary, and I can assure the members of the Association that it is perfectly easy to adapt it as neatly and completely to the swollen testicle. By this appliance, pressure can be applied with the greatest nicety, and, of course, as the testis shrinks, the elastic webbing follows it, so as to keep up an equal and a constant pressure; while, again, if it require tightening, this can be done in a moment without the inconvenience of depilating the scrotum, as we are apt to do in dragging off adhesive plaster. I do not wish to encumber this communication with cases; suffice it to say, that I have obtained the most satisfactory results from this mode of compressing the testicle, not only in cases of orchitis, but also in hæmatocele, and in hydrocele, after preliminary tapping.

2. *Mode of Compressing the Breast.*—The breast, no less than the testis, is difficult to compress by strapping, and hence often left unstrapped when great good would accrue from its proper application. To overcome this difficulty, I have had constructed a modification of Salmon and Ody's well-known truss, and find by this means we can in a minute apply a perfectly uniform and sufficient pressure to the entire gland, or to any part of it which requires compressing. The principal modifications consist in the hoop being larger and less stiff, in the spinal pad being much larger than in the truss, and in the breast-pad being concave, with a diameter of five or six inches. A ball-and-socket joint, with studs inserted at different points of the outside of this pad, enables us to apply pressure to any part of the gland by means of the strap, which encircles the opposite half of the body to that embraced by the steel hoop, being affixed to any of these studs as circumstances may require. The instrument is prevented from working down by a second strap, or broad piece of tape, passing over the shoulder, connected to the hoop back and front. I cannot but hope that the advantages of this plan are sufficiently obvious to render further argument unnecessary.

3. *Mode of applying Pressure to various parts of the Trunk and Extremities.*—We not unfrequently meet with cases of inflammatory enlargement about the trunk and limbs which require pressure; *e. g.*, the cure of boils and carbuncles is expedited, and the pain is lessened, by such treatment. The simplest, and at the same time the most effectual, method of accomplishing this, is by placing a piece of sheet lead, such as the one here shown, with a hole cut out of the centre large enough to encompass the base of the carbuncle, and then, by means of elastic straps, and a lace, affixing it firmly to the part required. Any one can manufacture such an appliance in a few minutes; the size of the lead sheeting and the length of the straps, of course being proportioned to the size of the tumor and the part of the body to which it is applied. In the treatment of indolent bubo, with high, hard, and irregular

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* Sometimes I have two pieces placed at right angles to the lower margin. I should add that the belt is curved a little forward at the lower part so as to form a partial bag.

edges, I have obtained most gratifying results from the employment of pressure by means of a piece of sheet lead placed over the bubo, without, of course, any aperture being made in the pad.

(*a.*) SURGERY OF THE VASCULAR SYSTEM.

On Venous Aneurism and adaptation of Tissues.

Dr. A. Van Best, F. R. C. S., writes to the *Lancet*, October 17, 1874:—

In the spring of this year I was asked to examine a swelling upon a girl's forearm. Her age was about fourteen; she was quite healthy; and the history of the swelling was obscure. I found a very peculiar tumor, larger than a walnut, just over the anterior superficial radical vein. It was emptied by pressure on the distal side. There was no pain, except a slight undulatory throbbing. I diagnosed it as a dilated sacculated valve of the vein, and removed it, tying the vein above and below.

The appearance of the sac after being cleaned out was exactly like the interior of an auricle; the capacity was larger than the point of a thumb; and the walls showed trabeculæ, and even muscular fibre, under the microscope. The wound healed well.

I could elicit no history of injury or puncture, and it is difficult to trace how such a tumor occurred. It was different from a varicose thrombus occurring in the lower extremity. It was a case of pure venous aneurism, with modified and organized walls; and, from its structure, might have had contractile power. There was no arterial communication, and only one dilation of the vein. The preparation well shows the interior of the tumor.

Adaptation of tissue, also, is seen wonderfully at the neck of the bladder and in the perineum. In the event of the bursting of the membranous portion of the urethra, occasioned by old stricture, we not unfrequently find, after all the immediate dangers have been combated, that a deputy bladder has formed, and the loose cellular tissue become so matted together and covered by a pseudo-mucous membrane as to form really a safe reservoir where the surplus water can be confined. This is emptied generally by an instrument or by manual pressure; but it also often has contractile force, as the patient is aware of its emptying and filling. Great adaptation of tissue must have occurred in these cases. In one, after external section straight to the bladder, I cured the patient of his mass of cartilaginous strictures, but his deputy bladder continued to be evacuated by pressure inside the left tuberosity of the ischium, and when once it flowed he strained hard. In another case the whole calibre of the urethra (membranous) was fusiform, exactly like Aveling's transfusion bag. This anterior bladder was constantly emptied by the patient, who carried a flexible catheter, which relieved him for twenty minutes. With great difficulty I got an instrument into the true bladder, but without any benefit, and had to trust to suppositories to allay irritability.

Other examples of adaptation of mucous membrane and skin are to be seen in the cure of severe cases of ectropion and entropion; also during the cure of fistula lachrymalis, or after division of Steno's duct; in the lifting of the middle portion of the upper lip to form a columna, and in separating the cheek from the jaw to obtain material for a fresh lip in epithelioma.

Treatment of Aneurism and Wounds of Arteries.

Professor Verneuil read an interesting paper upon this subject at the Paris Société de Chirurgie (published in the *Gazette des Hôpitaux*, October 8, and translated in the London *Medical Times and Gazette*, October, 1874), founded on seven cases that have come under his care. Of these four were examples of spontaneous popliteal aneurism, one a case of femoral supervening on contusion, one a radial occuring after a wound, and one a palmar arising amidst a purulent collection. In five the aneurisms were circumscribed, and in two diffused. The subjects were all males, and, with the exception of one, in good health and in the prime of life. The result was successful in five cases (two of the popliteal, in the femoral, the palmar, and the radial), and fatal in two. The duration of the treatment (except for the radial) was prolonged, requiring a mean of two months and a half. In three of the instances the patients cured themselves, almost without the direct concurrence of the surgeon, who only gave his instructions and surveillance. The part which the patience, address, and intelligence of the patient may play in such cases is well known, and forms a resource which should never be disdained. In one of the two popliteal aneurisms which proved fatal there was gangrene of the leg caused by emboli, and followed by purulent infection; in the other there was arthritis of the knee and phlegmon of the thigh. These results in both cases M. Verneuil attributes to the treatment employed, and thinks that they might have been avoided.

Passing in review the different procedures that were employed in the seven cases, he states that *compression* was at once resorted to in six cases, succeeding in two and abandoned in four. It cured unaided the radial, and, in conjuction with flexion and extension of the leg, one of the popliteals. In two cases it was abandoned, in consequence of the great pain it speedily caused, and of its failing to arrest or even moderate the progress of the affection. Although in the present series of cases compression has proved of so little advantage, M. Verneuil has in other cases achieved brilliant success in its employment; but these failures should tend to moderate the enthusiam which has of late regarded it as a panacea. *Flexion* had to be abandoned in two cases because it only arrested incompletely, and that with great trouble, the pulsations of the aneurism. In two other cases it furnished excellent results, as it alone was required to effect the cure in one of these, and powerfully aided the effects of compression in the other. It has the advantage of allowing the patient to quit his bed and walk with crutches without compromising the result. *Injection of perchloride of iron* was performed with complete success for a small palmar aneurism, but failed when tried in a popliteal; and the method seems suitable only for small aneurisms situated in regions where the detachment of a clot would not be of much consequence owing to the abundant collateral circulation. Like most French surgeons, M. Verneuil has had very limited experience in the use of the *ligature* in aneurism; but in the case of popliteal aneurism in which he employed it in the present series, it succeeded promptly and speedily, care having been taken not to attempt union by first intention. *Amputation* is an extreme measure, which at the present day should hardly be deemed as one of the methods of treating aneurism. Still, it is indicated as a last, although precarious, resource when certain complications occur, such as gangrene, diffuse phlegmon, purulent arthritis, bursting of the sac, hemorrhage, etc.; and M. Verneuil now regrets that in two of his cases in which precise indications were present he allowed the opportune time to pass by without venturing upon the operation.

In the discussion which followed the reading of this paper, M. Dubrueil observed that he had a higher opinion of compression than that entertained by M. Verneuil, especially when made completely by means of a small globe and a roller. With respect to wounds of the palmar arch, he does not approve of tying the ends of the vessels, as diffuse phlegmon is to be feared as a consequence of the great violence done to the parts by the operation. He prefers the practice followed by Robert and Jarjavy, of tying the brachial above the origin of the profunda.

M. Le Fort, in wounds of the palm, also believes that too much mischief may be done to the soft parts in seeking for both ends of the vessel; and if we can secure the bleeding end, we should then try direct compression for the arrest of the bleeding. When this recurs, as it often does, it will be preferable to employ the actual cautery and to tie the brachial than to make large incisions into the palm, which open the sheaths of tendons, giving rise to serious phlegmons, and impairing the functions of the hand.

M. Desprès disapproved of this practice entirely, believing that tying the wounded ends of the vessel is the proper course to pursue, and is quite exceptionally followed by any bad consequences. These cases are usually so simple in their course that they are not published at all, and thus erroneous inferences are drawn from the exceptional cases, which alone are published.

MM. Tillaux and Guyon also fully believe this to be the proper course, and do not regard the laying bare the ends of the vessel as the serious matter which M. Le Fort designates it. In searching for wounded vessels at the wrist, M. Guyon has found one anatomical point well worthy of note. Immediately external to the pisiform, the ulnar nerve and artery are enclosed in a fibrous sheath, which also contains a pellet of fat. On incising the skin immediately externally to the projection of the pisiform, and then dividing the little aponeurotic layer which presents itself, we come upon the small mass of fat; and on pushing this aside we find the artery. Another useful anatomical point to know is that a transverse line carried across the palm, taking the base of the thumb extended in abduction as the starting point, represents the direction of the superficial arch.

M. Marjolin said that in some wounds of the palmar arch he had obtained good results from compression practiced by children whom he had taught to do this. In recent cases he would tie the ends of the vessel, reserving compression for difficult and old cases. He regards the question as one of great difficulty, and calls to mind a case in which he had seen Blandin, after a series of failures of ligatures for a wound of the palm, finish by amputating at the shoulder-joint, and losing his patient after all by hemorrhage.

M. Perrin joined his colleagues in condemning the practice recommended by M. Le Fort. To tie the brachial for a wound in the palm is to go much beyond the mark, and to perform an operation that may prove very dangerous, while the employment of direct compression is an unsuccessful and dangerous procedure. He has met with three cases in which it induced fatal gangrene within twenty-four hours. M. Perrin in about ten cases has had to treat either primary or secondary hemorrhage at the lower part of the forearm or the palmar arch, and he has never met with the difficulties in finding the vessels and the bad consequences of the search for them that have been advanced. When the wound is recent the operation is even easy, however much the surrounding cellular tissue be infiltrated. On secondary hemorrhage taking place amidst softened and sanious tissues transformed into a black magma by the perchloride, the search becomes much more difficult. But by practising sufficient incisions in the direction of the arteries, and taking time enough, the end may usually be attained. M. Perrin, therefore, regards it as an absolute precept to tie arteries that have been opened either primarily or secondarily, wherever they are accessible; and it is only when they have been fruitlessly sought for that any other proced is permissible. Compression, in his opinion, is a faithless or dangerous mode of treatment, and should only be regarded as a provisional resource. "The Society of Surgery should speak very positively on this point, for compression has too many adepts in ordinary practice, and only serves as a refuge for disguised abstention."

On Popliteal Aneurism.

In a lecture on this subject, delivered in the theatre of the Royal College of Surgeons, by TIMOTHY HOLMES, F. R. C. S., Professor of Surgery and Pathology to the College, and reported in the *Medical Times and Gazette*, October 10, 1874,

The Professor began by stating that flexion of the limb is the simplest, the least distressing, and the least dangerous of all the methods of treating popliteal aneurism. That it should also be the least certain is not to be wondered at. When it succeeds, the absence of all pain and danger in the treatment of so formidable a disease is really marvelous. When it fails, it usually produces no bad effect (with some exceptions, probably no effect at all) on the progress of the case. But, as a general rule, it may be stated that flexion is often successful, and when unsuccessful is harmless.

Mr. Holmes's own experience of the method has been very favorable. Three cases which have recently been treated at St. George's (two by himself, and one by Mr. Rouse) were all rapidly cured by flexion. Mr. Ernest Hart's case, which was the first in England, and which is reported along with a successful case by Mr. Shaw, in vol. xlii. of the *Medico-Chirurgical Transactions*, led the way to the general trial of the method, especially in this country.

It must now be seen what have been the results of the trial, and an endeavor must be made to explain the action of the remedy, and to form the rules for its application in appropriate cases.

In Fischer's tables the result of flexion in forty-eight cases (thirty-six of which are English) of popliteal aneurism is given. In eighteen, flexion alone was successful, and in four out of these instrumental compression had failed. Flexion also succeeded in five others; in two of which it was combined with instrumental, in two with digital compression, and in one with the direct pressure of a bag of shot. So that the method was successful in 49 per cent. Of the other cases—twenty-five in number—the result is not given in four; all the rest were cured, except one who died after the ligature; but in two others the limb had to be amputated after ligature of the artery.

Many cases which have occurred or have been published during the five years which have elapsed since its compilation might be added to this list. A good many of these have been collected by the Professor, but they show about the same results on the whole as those derivable from Fischer's statistics—viz., (1) a very large proportion of cases in which success is obtained at once, with no serious inconvenience, and no danger whatever; (2) a tolerably large proportion in which the treatment has to be abandoned, and that either on account of pain provoked by it, or because it seems to exercise no curative power on the aneurism, but in which the course of the disease and the result of future treatment do not seem in any perceptible degree affected by the trial of flexion; and (3) finally, a small number of cases in which the treatment seems to cause rupture of the sac or grangrene, and therefore has a very injurious influence on the progress of the case.

The lecturer having considered each of these classes of cases in succession, and pointed out some of the causes of the success and failure of flexion, afterwards discussed the indications for and against this method of treatment.

First, of the successful cases, whether primary or secondary—that is, whether other treatment has not been tried or has previously been tried and failed. Now, among the former, we have some of the most striking cures which are to be found in the whole history of surgery, especially when we reflect that the disease is a very grave one, and that in spite of the success of the Hunterian operation the ligation of the femoral artery cannot fail to arouse a feeling of painful anxiety in the mind of the surgeon.

There are, on the contrary, cases of flexion treatment in which no such anxiety need be felt for a moment, in which flexion produces so slight inconvenience that the whole treatment consists of little more than a temporary confinement to bed, and some in which there is not even this confinement, but the patient is allowed to move about. There appears to prevail in the minds of some surgeons an idea that in order to cure popliteal aneurism a violent and painful degree of flexion is necessary, and they support this idea of the pain of the treatment by instancing the inconvenience which sudden forced flexion causes to healthy persons. But in most cases there is no reason whatever for any extreme degree of flexion, and its sudden enforcement is a great error which has led most probably to many of the failures of the method. The most rapid and painless cures have been brought about without any forced flexion or any apparatus—not even a bandage. Two cases of popliteal aneurism under the Professor's care were cured in less than two days. In the first of these flexion was to a certain extent *forced.* In the second case the trial of forced flexion produced a good deal of pain, and the man was accordingly merely directed to flex the leg for himself as often and as long as he could, the limb reclining on a pillow in the bed, and when weary of the position to change it a little. After only two days of this the pulsation and bruit had disappeared, and the enlargement of the collateral vessels was felt. As a matter of precaution, the voluntary flexion was continued for two days longer. The tumor in this patient has since disappeared, but the enlargement of the collaterals is permanent. Nor is the cure of the disease by voluntary flexion at all an exceptional circumstance. With Mr. Rouse's patient the same treatment proved successful, as it did also in two cases from French sources, which were quoted by the lecturer, and which show forcibly that the success of this painless and simple method is recognized abroad.

The indications for the employment of flexion, or the circumstances which augur its success, are the small size and recent origin of the tumor, the integrity and stoutness of the sac, the presence of a certain amount of coagulum, the efficiency of flexion in stopping (or at least in diminishing) the pulsation, and the fact that the position causes little distress. Sometimes it will even relieve the pain produced by the aneurism. When all these circumstances meet together, or even when the most important of them are observed, we are justified in hoping for a favorable result from genuflexion; but with the clear evidence which we now have of the success attending other methods of treatment, the effects of which can be better estimated, Mr. Holmes thinks it is not wise to persist too long in the flexion treatment when it is not obviously doing good.

Flexion, however, does not always succeed so rapidly as in the cases quoted by the lecturer; and when, although not immediately successful, it is clearly doing good, there is no reason for hurriedly resorting to any other treatment, and particularly in patients on whom more active treatment would be dangerous. This point is well illustrated by the history of a diabetic patient affected with popliteal aneurism, who was under the care of M. Verneuil. The constitutional disease precluded the idea of ligature, and the tendency to sloughing prevented any effectual amount of pressure being employed, though the flexion was supplemented by a certain degree of both direct and indirect compression. But as gradual improvement followed on the use of flexion in short sittings and at considerable intervals, this treatment was persisted in until at length the patient was completely cured. No doubt the number of successful cases of genuflexion might be increased if the method were more mildly and mercifully administered, and if the prospects of cure from voluntary and unforced flexion were more generally admitted.

But there are many cases in which flexion is ineffectual, and there are, no doubt, others in which it does very grievous harm, either by causing rupture of the sac or by producing gangrene. In Dr. Fayrer's case (reported in the *Medical Times and Gazette* for 1867) the aneurism burst immediately after, and the bursting was probably produced by flexion. Such seems to have been Dr. Fayrer's opinion. The aneurism was one of very rapid formation, still growing very fast, and having a thin sac. Amputation was subsequently requisite, and the patient recovered with the loss of his limb. Other cases, more or less similar in character to the above, were quoted, especially a case under Mr. Holthouse.

Had we clear ideas of the exact operation of flexion, we should obviously be more likely to avoid failure. The chief effect of flexion is the retardation of the stream of blood; and it is to this that the method owes its existence, for it was originally recommended by Malgaigne, Thierry, and others, from the analogy of its hæmostatic action in wounds of the hands, and it was first used by Maunois and Ernest Hart in consequence of their having noticed that bending the leg stopped the pulsation of the aneurism. The following description is given by M. Larondelle of the changes in the artery as observed in the dead subject: "When the leg is bent to a right angle on the thigh, the popliteal artery changes its direction from rectilinear to flexuous in the portion below the bend of the joint, the curves being very small and very close together. At the same time, the artery becomes flattened at the flexure of the joint. As the flexion is increased, the flattening and the curving of the vessel become greater, while above the flexure of the joint the artery preserves its normal direction. If the posterior tibial artery be cut across at the ankle-joint, and water be injected into the femoral, the jet will be found to diminish as the angle of flexion increases; and when the heel is bent to within four inches of the tuber ischii it stops altogether, while the piston of the syringe resists forcibly the attempt to drive the injection." Still, flexion succeeds in femoro-popliteal aneurism also—as, for instance, in M. Legouest's case in the *Gazette des Hôpitaux*, 1869, p. 185; and it is clear that this cannot be entirely accounted for by the changes which this author describes in the lower part of the vessel. After quoting from Mr. Ernest Hart's paper, published in the *Gazette des Hôpitaux*, 1864, that author's explanation of the action of flexion of the limb in aneurism, Professor Holmes goes on to say that he himself suspects that flexion also cures by the displacement of clot, and the consequent obliteration of the mouth of the aneurismal tumor, quite as much as by the diminution of the force of the blood-stream and by direct pressure on the tumor—perhaps more so. If the tumor be in part occupied by somewhat loose coagula, and if the flexion of the limb happens to displace one of these coagula into the opening of the tumor, forming a plug there, we can easily understand that such a plug may so far increase during a few hours of flexion as to produce an invincible obstacle to any further growth of the tumor. Or, again, even if the aneurism contains no clot, or none which can be displaced, yet it is conceivable that its mouth may be so situated as to be closed by the bending of the artery; or the old idea that the aneurism may be cured by the tumor itself compressing the artery which led into it, may be realized in cases where the limb is flexed.

Apart from some such mechanical explanation, Mr. Holmes cannot see how we are to understand either the rapid cures which sometimes occur under flexion (as also under other forms of pressure) or the immediate stoppage of the bruit and of the pulsation which pressure does undoubtedly in some cases produce, though not in all. Again, the cases in which the flexion treatment produces an incomplete cure, which gradually goes on to completion, similar to what occurs so often in the rapid method of compression, seems to be best explained by impaction of clot in the mouth of the aneurism. If this be so, the action of genuflexion would be very similar to that of manipulation. A very interesting case, reported by Mr. Pemberton, and suggestive of this case, was quoted.

After a brief allusion to the less usual form of treatment of popliteal aneurism, the lecturer commented on the method practiced by Dr. Levis (of Philadelphia) and Mr. Bryant, of introducing horsehair into the sac, and remarked that the method is probably worthy of a trial in cases where others seem too dangerous. Horsehair, he continued, is a more innocuous substance than the wire which Mr. Moore first introduced for the same purpose, and it does not melt in the blood-stream as the catgut does which Dr. Murray substituted for the wire; but all such plans must be both dangerous and uncertain, and therefore very little applicable under ordinary circumstances to cases of popliteal aneurism.

It must not be overlooked that some aneurisms, even when almost completely consolidated, will still continue to increase in size, without any pulsation, almost exactly resembling malignant disease, and producing, in the case of popliteal aneurism, symptoms depending on the pressure exerted by the tumor on the great vein, which renders amputation necessary, even though the surgeon is perfectly aware of the nature of the tumor.

As a matter of fact, however, such tumors are usually mistaken for malignant disease, and it is interesting to inquire whether the mistake is inevitable or not. There can be no doubt that it has been committed so often, and by such distinguished surgeons, that it is sufficiently pardonable. Cases of the sort were quoted at some length.

There are other cases in which the course of symptoms and the pathological appearances are very much the same as the above, but where the history prevents any ambiguity in diagnosis—viz., cases of definite rupture of the aneurism and subsequent growth.

The conclusions as to the treatment of popliteal aneurism, to which our present experience points, are, Mr. Holmes thinks, the following:

1. That rapidly growing aneurisms with a thin or imperfect sac are best treated by immediate ligature, especially when caused by recent violence; and that the success of compression is doubtful in aneurisms growing towards the knee joint, and in all others which advance rapidly.

2. That the Hunterian ligature has been about twice as successful in modern hospital practice in this country as the results of the accepted statistics show it to have been.

3. That the results of the compression treatment in the same hospitals have given as yet about the same average as those of the ligature, but that these results might be much improved by a more careful employment of the method.

4. That too long persistence in compression is to be deprecated, as being likely to interfere with the success of the ligature.

5. That the flexion is often successful when used so as not to distress the patient, and is worthy of a trial in all cases in which it stops or materially checks the pulsation, but should not be long persisted in when it is not at once beneficial.

6. That we have no evidence showing the utility of, or the need for, the less usual forms of treatment, such as galvanism, coagulating injections, manipulation, temporary ligature, or the introduction of foreign bodies.

Femoral Aneurism Treated by Instrumental Compression.

The following case, under the care of Mr. Colles, is reported by **Frederick W. Warren**, L. R. C. S. I., resident surgeon in the Irish *Hospital Gazette*, September 1, 1874:—

James F———, aged 30, of delicate appearance, and spare build, a laborer in an iron foundry, admitted into Hospital April 15th, 1874.

Previous History.—He stated that six months prior to his admission he first observed a small pulsating tumor in the upper part of his right thigh (the tumor was about the size of a walnut at that time). He could ascribe no cause for the occurrence of this swelling except a severe attack of acute rheumatism a few weeks before, from which he had quite recovered, and had resumed his usual employment. This tumor remained stationary for a fortnight without causing him any alarm, when it began to increase obviously in size, and was accompanied by pain shooting downwards along the inner side of his right thigh and leg. He now applied at the Middlesboro' Infirmary, Yorkshire, and was admitted. In this institution he underwent the treatment by instrumental compression, applied to the external iliac artery. The pressure, he stated, was kept up daily from nine in the morning till seven o'clock in the evening, with slight intermissions, for half an hour at a time, for a period of four months, during which time the pulsation ceased upon two different occasions, but returned in about two hours. Previous to each cessation he suffered extreme pain, which disappeared as soon as the impulse returned; subsequently pulsation ceased for twelve days, but recommenced on his getting out of bed and walking about. He now determined to come to Dublin in accordance with the advice of many of his friends. The right knee had undergone firm anchylosis from strumous disease of the joint, and numerous old cicatrices exist in the neighborhood of the articulation corresponding to abscesses and sinuses. He had also suffered, when a boy, from necrosis of the right tibia.

Symptoms on Admission.—The patient presented a very blanched appearance, and stated that he had always been a delicate man. His voice was very husky. On examination, a tumor about the size of an orange was discovered occupying the upper third of the right thigh in Scarpa's angle. It was very hard to the touch, especially on its outer side, but not at all tender; it was distinctly limited above by Poupart's ligament; was surrounded by a number of enlarged lymphatic glands, and could be traced downwards very deep in the space. The tumor had all the characters of an aneurism, viz: an expansile diastolic impulse, a faint, though distinct *bruit*, on stethoscopic examination, with immediate cessation of these symptoms on making moderate pressure above upon the external iliac artery. A thrill could also be felt by laying the hand upon the tumor. The tumor measured 5 inches in its transverse by 4¾ inches in its vertical diameter. The circumference of the limb over site of tumor was 19¾ inches; and the sound one, in a corresponding situation, measured 17 inches. Pulsation could not be detected in any of the vessels below the tumor. There was slight œdema of the right lower extremity. The heart sounds were normal. Complained of no pain whatever.

Ordered the following mixture:—

℞. Tinct. ferri. perchloridi, ʒij.
Tinct. digitalis, ♏lxxx.
Aquam, ad, ℥viij. M.
Ft. mistura. Two tablespoonfuls three times daily.

April 19*th.*—Remains much in the same condition. Ice ordered to be applied to the tumor by means of a small-sized Chapman's bag; appetite good; rests well at night.

23*d.*—To-day pressure was commenced by means of Read's femoral aneurism compress applied to the external iliac artery, the part being first dusted with violet powder, and protected by a pad of chamois leather. Ice to be kept constantly over tumor. The limb was previously carefully bandaged from the toes up with a flannel roller.

30*th.*—Compression has been since kept up, with slight intermissions during the day, from 9 in the morning until 8½ o'clock in the evening. The longest time he can bear the pressure continuously is one hour, when it becomes intolerable, and he is obliged to remove the instrument for ten minutes. Large opiates were from time to time administered without in any way allaying the pain so long as the instrument remained on. States that the compressor causes much less pain than the one used in England, which he never could wear more than half an hour. The tumor is somewhat harder to the touch, and the impulse and *bruit* slightly less, but as yet very little improvement has taken place.

May 1*st.*—Remains much in same condition. Ordered—2 ℔s. of shot to be enclosed in a bag and laid on surface of tumor, so as to produce local pressure. Ice to be suspended.

8*th.*—To-day pulsation and *bruit* almost ceased altogether, the tumor became extremely hard, and the patient complained of the most excruciating pain in the line of the collateral circulation at the back of the hip and round the crest of the ilium, and stated that he could not bear the instrument. Ordered—Half a grain of the watery extract of opium every hour. Shot to be increased to 4 ℔s.

9*th.*—Pain has disappeared, and the impulse and *bruit* returned as before. To continue similar treatment. Bowels constipated. Ordered—Pil. rhei. co., gr. x.

12*th.*—Patient observes that when he flexes the trunk upon the thigh, by leaning forwards in a sitting posture, that the impulse was at once checked. He was ordered therefore to do so occasionally, as a relief to the instrumental pressure.

15*th.*—Patient stated that the pulsation ceased entirely this morning from 1 o'clock a. m. to 3 o'clock a. m., when it returned. During that time he suffered intense pain. The instrument was not applied at the time. Flexion by raising the leg was tried to-day, but could not easily be accomplished, owing to the anchylosis of the knee; it was therefore abandoned. To go on as before.

16*th.*—About 9½ o'clock this morning, having worn the compressor for about half an hour, was again seized with excruciating pain, and on examination tumor was found hard and without either impulse or *bruit*. About 12 o'clock the pain subsided, and a very faint soufflet could again be detected on applying the stethoscope.

21*st.*—Much better, though tumor still pulsates slightly; has a much firmer feel. The bag of shot to be discontinued, and a bandage firmly applied round the limb at site of the aneurism. Ordered the following mixture:—

R:	Potassii iodidi, gr.,	lxxx.	
	Infusi cinchonæ, ad.,	℥viij.	M.

Ft. mistura. Two tablespoonfuls three times daily.

26*th.*—The tumor is greatly consolidated, presenting a very hard sensation to the touch. The impulse can now only be felt on the inside of the aneurism. The thrill has quite gone. *Bruit* very faint, almost inaudible. Bandage to be removed, and one grain of ergotine injected hypodermically, morning and evening, in the neighborhood of the tumor.

27*th.*—As patient complains of great pain around the points of puncture of the hypodermic syringe, and as there is a good deal of inflammation set up, it was deemed advisable to suspend the ergotine. Patient's general health very good.

31*st.*—To-day the pulsation ceased entirely, the *bruit* also became inaudible, yet, strange to say, the great pain which invariably preceded and accompanied this phenomenon, now merely continued for about an hour, in a much less degree, when it abated altogether; however, "*on examination all impulse and bruit were found to have completely subsided.*" Perfect rest in bed was strictly maintained for a fortnight subsequent to this date, when the patient was able to walk about, with the aneurismal tumor perfectly consolidated, though not much diminished in size. The tumor was subsequently strapped with mercurial plaster, so as to promote absorption. He complained of numbness in the limb for three weeks after the pulsation ceased, but this gradually subsided, and the patient was discharged on July 24th, 1874.

During his stay in the Hospital pressure was maintained for a period of thirty-eight days, with short intervals of rest, before the cure was effected.

The measurement of tumor after consolidation had existed for seven weeks, were:

Vertical diameter, ...	4⅛ inches.
Transverse "	4½ inches.

The measurement of the affected limb at site of tumor was 18¾ inches; that of the healthy one in the same position being 17 inches.

Remarks by Mr. Coles.—The points of interest in the above case may be enumerated as follows:—

1. The great length of time compression was kept up before a cure was effected.
2. The extreme liability to recurrent pulsation.
3. The fact observed by the patient himself, that when he restricted himself to a very small quantity of food the impulse became much weaker, and would finally cease altogether; and also, that upon each occasion of its cessation, he had just before been exerting himself by getting out of bed.

The length of time this man was under treatment should encourage the surgeon to persevere as long as the patient can bear the pressure and the tumor does not increase.

The occasional stoppage of all pulsation, at one time for some days, often for one day, is very remarkable, and might be considered as an unfavorable symptom; but it only encouraged us to persevere, although it is not easy to explain the cause of this unusual occurrence.

(*b*.) SURGERY OF THE NERVOUS SYSTEM.

Surgical Treatment of Neuralgia.

The cases below are given by Dr. H. C. WYMAN, of Michigan, in the *Peninsular Journal of Medicine*, October, 1874 :—

Case 1st. Mrs. L., aged fifty, mother of healthy children, passed the menopause during her forty-fifth year, and until after that event never knew what it was to be sick. Says she has since had cancer of the womb and been cured by a physician. But inasmuch as that physician was one of the class known as "cancer doctors," and as a careful examination failed to discover any evidence of carcinoma having existed, I concluded that she must have been a victim of quackery, and only suffering from some simple affection incident to the turn of life.

At the time she came under my care she complained of great pain in the left arm and shoulder, and had suffered almost constantly during the previous year. She had consulted several physicians, who had blistered and setoned her; had taken a great deal of medicine—iodide and bromide of potassium, etc., and was now taking morphine daily, but without receiving any material benefit. I tried to relieve her by the hypodermic use of morphine, but to no purpose; the pain never left the arm and shoulder. The parts supplied by the ulnar vein would, at times, become painfully numb, until some slight change of position would relieve this very unpleasant symptom. She was daily sinking under the combined influence of pain and opiates, and had become greatly emaciated.

The constant presence of pain in the parts supplied by the brachial plexus of nerves led me to think that there was some lesion of the plexus. After carefully examining by palpation the parts in the vicinity of the plexus, I discovered a tumor deep in the subclavian triangle; indeed, so deeply seated that it was with difficulty that it could be made out. It seemed to be slightly movable, and attached to the deep tissues in the neighborhood of the plexus. I immediately commenced treatment aimed at the discussion of this tumor. Internally and locally remedies were used intended to promote absorption and resolution of the tumor, but succeeded in removing nothing but the integument over it. I now advised her to submit to an operation for the purpose of extirpating the abnormal growth, to which she willingly consented. With the assistance of my father, Dr. H. Wyman, and Dr. Porter, I placed her under the influence of chloroform, and commenced the operation by making an incision two and one-half inches in length, extending upwards from the clavicle and parallel with the cervical portion of the trapezius muscle. Dissected down until I came upon the tumor, when I introduced my finger into the wound and carefully pushed aside the vessels until I was able to make out the parts to which the tumor was adherent. Found it attached to two cords of the plexus and the cellular tissue. Cut and tore it from its attachment and pulled it from the wound. Found it to be a simple cyst, not larger than a walnut, and making so little counter pressure that it did not seem possible for it to cause all the trouble by simple pressure against the cords of the plexus. I now examined the cords where they had been separated from the tumor, and found them indurated already, and endeavored to relieve the induration by pulling away the cellular tissue and new formation with the forceps, but could not do it satisfactorily in that way. I therefore passed down a sharp bistoury and split open the indurated neurilemma. Closed the wound in the integument with interrupted sutures. It suppurated considerably, but healed at the end of two weeks. All pain had ceased when the patient recovered from the anæsthesia. It has not returned up to the present time, six months after the operation, while the function of the plexus is in every respect perfect.

Case 2d. Miss B., aged 30 years, constitution and general health good, until she was attacked, a few days since, with phlegmonous erysipelas of the arm and hand. Prescribed the usual medicines, and made free incisions down to the bone, and evacuated large quantities of pus, which greatly relieved the pain and swelling. From this time forward the swelling and constitutional irritation gradually subsided, but pain in the course of the median nerve from the middle of the fore arm to the ends of the fingers came on and was gradually increasing. Hypodermic injections of morphine failed to relieve it. Nothing that I had done seemed to help it. She could not sleep at night, could not eat, nor could she do anything but complain of pain and implore relief. I had noticed in other cases of erysipelas where I had made incisions in the course of the large nerves that they appeared black and congested, like the other tissues, and believed that in this case I had a similar pathological state causing the pain. If that were the case, thought it could be relieved by slitting open the neurilemma and giving the engorged vessels a chance to empty themselves. Made an incision from a point two and a half inches above the wrist extending up the arm as far as the pain extended, and down upon the median nerve; raised it from its bed, found it as I anticipated, and slit it open for nearly three inches. Allowed the nerve to resume its normal position, and waited to see what effect the operation would have. Scarcely an hour elapsed before my patient dropped quietly asleep. All pain ceased, the wound healed, and the case progressed favorably. She is now well, and the functions of the median nerve are perfect. The successful issue of these cases demonstrates the feasibility of operative procedures in a class of cases which have hitherto received no benefit from the treatment laid down by medical writers. No doubt many cases of rheumatic neuralgia might be relieved, or the occurrence of inflammatory new formation prevented by making free incisions in the neurilemma.

Trismus Relieved by the use of Tincture of Lobelia Inflata.

Dr. D. Forbes, of Tullahoma, Tennessee, writes to the *Nashville Medical Journal*, August, 1874:—

May 23d, 1874.—H. J——, aged 25 years, colored laborer, came to my office, with his jaws closed and immovably fixed. He was accompanied by a friend, who informed me he had been in this condition during the last three days. Every means he and his friends could think of were adopted to produce relaxation of the muscles, but without the slightest visible effect. During these three days he had been utterly unable to swallow anything, and of course he had taken neither food nor drink. Under these circumstances his sufferings increased until the time he called on me, when they were well-nigh intolerable.

After duly considering his case, I concluded to make a trial of the tincture of lobelia inflata, on account of its convenience and well-known and powerful anti-spasmodic properties. I began by pouring, through his clenched teeth, a teaspoonful of the officinal tincture. I then gave him some of the medicine, and directed him to go home, about a quarter of a mile distant, have his head and face enveloped in a cloth wrung out of water as hot as he could bear, and have another teaspoonful of the tincture poured into his mouth.

Before he arrived home, the dose I gave him began to take effect, and produced considerable nausea.

My directions were fully carried out, and in a few moments after taking the second teaspoonful, he fell into a quiet and profound slumber, which lasted some time. When he awoke, his jaws were relaxed, and as free from spasm as though such a thing never existed. The trismus was entirely gone, and he felt as well as usual, except from the want of food and drink.

The following is a history of his case, as related by himself: Up to December, 1873, he had enjoyed uninterrupted good health. At this time he was employed as a laborer on the Nashville and Chattanooga Railroad, and boarded on the repair train from this place. Some time in the month named, he was suddenly taken ill, with most distressing vomiting, accompanied with a succession of the most violent tetanic spasms, resulting in trismus of the most obstinate description. For several weeks he had a succession of attacks of this affection, more or less frequent; and this has followed him occasionally ever since. Sometimes he is free from these attacks for several months, and then, for a time, recurring every few weeks or days.

Such is a brief history of this case up to the time when he first came under my observation and treatment. Since that time he has had several slight attacks, but of a very mild character and of short duration.

As for the causation of this trouble, it is involved in the utmost obscurity. That it is not traumatic in its origin is evident; for he had received no cut, puncture, bruise, or injury of any kind whatever; nor had he any sore which could form a source of the phenomena. His belief is, that poison was put in his food by some parties who had become offended with him. However this may be, or whatever the specific cause, it seems evidently a case of *idiopathic tetanus*. In some of the more severe attacks, there has been a strong tendency to *opisthotonos*, as well as to *trismus*.

Wound of the Knee-joint, with Escape of Synovia.

Dr. R. G. JENNINGS, of Little Rock, reports the annexed case in the *American Practitioner*, November, 1874:—

N. J. H., carpenter, aged twenty-six years, rather delicate, with strumous diathesis, cut himself in the right knee with an adze. The wound was an inch and a half in length, extending from the inner border of the patella, across the tissues of the knee, over the joint. The physician who saw the case first dressed the cut by two interrupted sutures and adhesive strips, and gave it as his opinion that the wound was too slight to prevent the patient from resuming work at once. Acting upon this suggestion, the patient in two hours experienced intense pain, which continued without intermission for forty-eight hours, when I was called. At this time there was extensive inflammation of all the tissues of the knee-joint; the surface intensely red, swollen, and painful, with an ichorous discharge from the wound; could neither move the leg nor bear even the weight of the bedclothes. The general excitement was extreme, with high fever, thirst, etc. After removing the dressings and cleansing the parts I applied carbolic-acid cerate to the wound, and directed a lotion of muriate of ammonia, tincture of arnica, and opium to be kept constantly to the knee, and the patient to have a brisk purgative and a full dose of opium.

The next morning found the patient easier, having slept some, and in all respects better. The following day, there being an increase of the local suffering, I applied warm flaxseed and hop fomentations to the knee, and gave a febrifuge mixture. At my next visit I discovered that a considerable quantity of synovia had escaped from the wound, and this continued for a number of days, the fluid varying in color and consistency, and also in amount. The edges of the wound presently began to granulate, and gradually cicatrized, except at one small point, which continued to discharge small quantities of synovia. The swelling about the knee now increased, and was accompanied by considerable œdema of the leg and foot. Subsequently a large abscess formed in the popliteal space. This was freely opened, and after discharging pus mixed with synovia for some time, was at the end of six weeks finally closed by the aid of methodical pressure. The treatment during this time had been first antiphlogistic, then supportive, and finally tonic and stimulant.

After the abscess and original opening into the knee had closed, and the more acute local symptoms had subsided, the joint was daily painted with tincture of iodine. Gentle frictions were made over the entire limb, and passive motion perseveringly instituted, with the effect of soon restoring the parts to a normal condition.

(c.) SURGERY OF THE EXTREMITIES.

Management of Inverted Nail.

The method described below is recommended by Dr. JOHN NEILL, in the Philadelphia *Medical Times*, November 7, 1874:—

If the nail has not been cut, it can be cured in a few weeks. If it has been cut away, it will require just long enough for the nail to grow again, which may be four months.

In commencing the treatment, first clean and dry the parts from all offensive secretions and pus. This can be done with a camel's-hair pencil, or a piece of sponge, but still better by using a small swab made by rolling a small amount of carded cotton about the end of a probe. The ordinary silver probe will not answer, because the point or bulb at its end, as you see, prevents the cotton being slipped off when it is soiled. I have, therefore, probes made out of No. 16 knitting-needles, which answer the purpose admirably. This same apparatus will also be found useful in wiping out the external meatus of the ear. The little brush of cotton can be readily made on the end of this instrument, and can be as rapidly removed after it has been used; and with it you can gently wipe the most sensitive granulations, and obtain a thorough examination of the parts. If the granulations are very luxuriant, it is best to direct our treatment exclusively to them for a few days, and they can be rapidly reduced by brushing them over with the nitrate of silver either in solid form or in solution, if this latter is the more convenient mode of application. Besides the nitrate of silver, a solution of the chloride of zinc or Monsel's solution can be used with great benefit in reducing the granulations and diminishing the discharge. After the granulations have become less sensitive, but before they have entirely disappeared, you commence the real treatment. After drying the surface with the cotton brush, it is to be covered with a layer of collodion. Then, by means of the other end of this probe, which has been flattened out and rounded into a packing instrument, a dossil of cotton is to be carefully pressed between the flesh and the nail, and cemented into its place by another layer of collodion. A dossil of cotton may also be tucked under the anterior free edge of the nail and secured in the same manner, if this edge has not been already cut away. This dressing will usually retain its position without much trouble; but to make it more secure a narrow strip of adhesive plaster may be applied around the toe. In two days the toe should be again dressed, but the cotton should not be removed unless it is moist and saturated with pus. After a few dressings the discharge will cease and the cotton will remain dry, and then it should not be taken out, but a fresh dossil should be thrust in alongside of that which is already beneath the nail, and coated with collodion. You will soon be able to press a wedge of cotton beneath the front edge of the nail, and bring it out beneath the side which has been pressed against so long by the fleshy granulations. After this has been accomplished, the cure is very rapid. The ordinary shoe can be worn, and the dressing need only be renewed twice a week. The patient must now be instructed in this process of packing and wedging the cotton under the edge of the nail and fastening it in its place by means of collodion, and he never need have an inverted toe-nail again, and will be thankful that you did not subject him to the painful operation of evulsion.

On Anchylosis.

The New York *Medical Journal*, November, 1874, reports that at a meeting of the New York Academy of Medicine on October 15, 1874, the paper of the evening, on "Anchylosis," was read by Dr. LEWIS A. SAYRE, and was substantially as follows:—

Anchylosis is derived from a Greek word, signifying *crooked*, and signifies a loss of motion in a joint. It is divided into two varieties: 1. True, osseous, or complete; 2. False, fibrous, or incomplete.

In the first variety there is an absolute consolidation of the articulation, with no motion, and in the second there is usually limited motion, though to a degree barely appreciable in some cases.

Anchylosis is most common in ginglymoid articulations, though it may occur in any of the joints. It seldom happens that more than one joint is involved, but there are cases where two and even more are anchylosed. One case of morbus coxarius, that was treated by the wire-breeches, developed, during the time that the apparatus was applied, anchylosis of the hip, knee, and ankle of the opposite side. This case was a valuable lesson as to the effects of long continued rest.

In old age anchylosis of the ribs with the vertebræ and sternum is the rule. Anchylosis is not a disease itself, but may be the result of disease in any of the joints. It is sometimes the best result we can get, and then the judgment of the surgeon must dictate the best available position, such as the flexed elbow and the straight knee, the future usefulness of the limb being the guide. It is from the neglect of this latter fact that surgical interference is most commonly required, particularly as regards the knee.

In chronic inflammation of a joint, the reflex irritation acts on the muscles, causing contraction and distortion of the limb, and in this condition, to avoid such an issue, we must have recourse to extension and counter-extension. If, as frequently happens, the case is left to itself and consolidation takes place, it becames necessary to try and make a new joint, and it is important to know whether we have to do with a case of fibrous or osseous anchylosis. If fibrous, it may be broken up; but if true, we must make a section of the bone. It is in many cases excessively difficult to detect any motion in a fibrous anchylosis, but there is one fact of great importance in throwing light on this subject, and that is that, on the day after the manipulation, much pain is felt if fibrous, and none at all if it is osseous.

The case in which I first detected this, was a patient in Bellevue Hospital. She was examined, under an anæsthetic, by Drs. Van Buren, James R. Wood, and others, and, to all appearances, we had to do with a case of osseous fusion. Next day there was much pain in the joint, and that convinced me that it could not be bony. I afterward proved the correctness of my views by making subcutaneous section of the muscles and fascia, and breaking up the adhesions. Extension was kept up, the parts maintained at rest, and eventually she recovered, with a movable joint. Some time afterward she was delivered of a healthy child by the late Dr. George T. Elliot.

In the breaking up of fibrous joints, it is the better plan to thoroughly anæsthetize the patient and complete the operation at once. The gradual method causes irritation, without any compensating benefit. The method of operating is to first find the muscles and fasciæ that are put on the stretch when the limb is endeavored to be extended, and, if possible, divide them subcutaneously a few days before the operation itself is attempted.

In attempting the *brisement* force, the patient is to be thoroughly anæsthetized. The surgeon then grasps the extremity of the limb and flexes and extends till he has got free motion in all the normal movements. One of the commonest causes of failure comes from the surgeon stopping too soon in his manipulations, hoping after a time to continue them, but the subsequent irritation and inflammation around the joint prevent any interference till they have subsided. Inflammation as a sequence to the operation is to be prevented, and it is best done so by applying adhesive straps around the toes in lieu of the bandage, first having padded the inequalities, and continuing upward with the roller-bandage. Adhesive straps are so applied also as to allow of the application of a weight to the foot for counter-extension. When the bandage reaches the popliteal space, that also is to be padded, and in carrying it up the thigh à piece of sponge is to be placed over the track of the femoral artery so as to partially impede the arterial current. The limb is then kept quiet in a splint, with absolute rest in bed.

Ice-bags are applied around the joint as an additional aid. In six or seven days the dressings are removed, slight motion made, and the dressings reapplied as before, with the exception of the sponge on the femoral artery. As a result of the operation there may be ecchymosis, but never suppuration, and, of all the cases I have operated on, there has never been a resulting synovitis.

After a few more days daily motions are made, and an apparatus applied, so that the patient is enabled to do it himself.

When the anchylosis consists of osseous fusion, it becomes necessary to exsect a portion of the bone.

Rhea Barton, in Philadelphia, first performed this operation, by taking a wedge-shaped portion of bone out of the shaft, and keeping up passive motion. Gurdon Buck, in this city, modified the operation in 1852, by making it through the articulation.

Adams, of London, has again simplified it by making a simple section of the bone. Dr. Sands, of this city, has repeated this operation. My own method of operating is to exsect a portion of the bone, leaving the extremities convex. I am afraid, when simple section of the bone is made, that sooner or later anchylosis will be again established.

Dr. Sayre exhibited several cases showing in the knee motion to the extent of ninety degrees, and in the thigh sufficient for all practical purposes.

On motion of Dr. Finnel, Mr. Erichsen, of London, was asked to kindly favor the Academy with a few remarks.

Mr. Erichsen: "I confess that, in the able address of Dr. Sayre, my attention has been directed to some points quite novel to me. I refer to the existence of pain subsequent to manipulations in cases of fibrous anchylosis. In my practice, I have entirely overlooked the matter, and have relied for diagnosis on manipulation while the patient was under the influence of an anæsthetic. I grasp the joint securely, placing the thumb over the articulation, and allow an assistant to move the extremity of the limb.

"I can conceive, however, of cases where, by this means, no motion might be discoverable, and at the same time fibrous adhesions only exist in the joint. I think I should be inclined to go one step further than Dr. Sayre in the classification of false anchylosis, and divide it into two varieties: 1. That in which there is no destruction of the synovial membrane of the joint; and 2. That in which there is.

"I had the good fortune once to make a *post-mortem* examination of a case of this latter variety and see what were the results of force applied. I found the synovial membrane replaced by fibroid tissue. The post-crucial ligament had torn off a scale of the tibia. The ligamentum posticum was folded and puckered. In those cases the peculiar deformity is a displacement backward and a rotation outward of the tibia, giving the limb a characteristic wavy appearance, and in these cases there is no chance for mobility, inasmuch as the articular extremities cannot be kept in position.

"It is wise to recognize the importance of a partial subluxation on the usefulness of the joint. It is well illustrated in cases where the astragalus has passed slightly out of the arch of the articulation, and, unless it is restored, the patient will never have any comfort of his ankle-joint. It is in those cases that a class of practitioners whom we have among us, and known as bone-setters, make so much reputation.

"They grasp the limb and suddenly flex and extend it. In this way the muscles are taken by surprise, and the subluxation is reduced; when it is reduced, the patient finds he can walk without his accustomed pain, and is practically well.

"As regards the operation for bony anchylosis, I agree with Dr. Sayre as regards the exsection of a portion of bone above the insertion of the iliacus. If the bone is exsected, the case practically becomes one differing in no respect from the ordinary operation of exsection. If, on the other hand, a simple section is made, we have what is analogous to compound fracture, and in process of time, as the history of the case proves, there results consolidation."

The Treatment of Chronic Strumous Synovitis.

Mr. Richard Barwell, F. R. C. S., Surgeon to the Charing Cross Hospital, in a paper published in the *British Medical Journal*, October 17, 1874, says :—

The particular form of disease to which the following remarks apply is the condition which Sir Benjamin Brodie termed "a morbid change of structure of the synovial membrane," which he deemed to be incurable, and of the same order as scirrhus, medullary sarcoma, fungus hæmatodes, etc. It is more common in the knee than elsewhere, and produces a round, almost shapeless enlargement, which imparts a dull sense of fluctuation, and which conceals or muffles the anatomical points of bone or ligament. It is the true white-swelling, with which all here mus be quite familar as a malady that frequently commences and remains for a consi erable time painless, then becomes extremely painful, and may in some cases lead anchylosis, but more frequently to complete destruction of the joint.

Such a case, examined anatomically when the tumor has attained a large size, before either curative or destructive processes have commenced, exhibits peculiar appearances. The cavity of the joint will be much encroached upon, perhaps almost obliterated, by a light brown or rosy tinged jelly, into which all tissues from the skin inward appear converted. This jelly is traversed by fine wavy blood-vessels, is intersected by a few thin white fibrous bands, and is marked here and there by blotches of a yellower hue. Internal and external ligaments, interarticular and even articular cartilages, have all been converted into, or engulfed in, this gelatinous mass, which, in such advanced cases, appears to spring from the denuded bones and subcutaneous tissue. Less advanced cases exhibit the same jelly-like mass, but in less quantity, less thick, which appears to be growing from both surfaces of the synovial membrane. Ligaments and interarticular cartilages appear changing into this substance, losing their toughness and elasticity, and becoming thicker and sodden, their constituent elements being separated by jelly. A portion of this substance, submitted to microscopic examination, exhibits the characters of growing embryonic tissue; viz., it consists of cells, round and oval, of bare nuclei, and of granules; intermingled with these are also fusiform cells, so arranged that their tapering extremities, overlapping each other, form lines three or six cells in thickness; these lines are sometimes arranged as a network, in the meshes of which lie the other elements. On the number of these lines, therefore, on the size of the meshes, depends the more or less soft quality of the gelatinous mass. Of the peculiar appearances presented by the yellow blotches, as well as by the surroundings of localized and isolated abscesses, often found in this tissue, I will speak immediately.

Several years ago, I pointed out that this tissue is identical in macroscopic and microscopic characters with the material that forms the granulations and the subjacent bed of an indolent ulcer; the same is also abundantly present in the swollen mass that surrounds carious tarsal or carpal bones; it is, in fact, simple granulation-tissue. In such an assembly as this, I need not point out that every inflammatory act is attended by proliferation of the cells in the connective tissue. If the inflammation be healthy, and in a sound constitution, these freshly produced cells and nuclei, at first round and oval, pass through a fusiform stage into fibre-cells, and so to the formation of new tissue, whence thickening of the part, stiffness if it be a joint; perhaps, if the malady have been severe, anchylosis. But the specialty of strumous inflammation is, that it does not complete these formative stages; hence it is both sluggish and invading—sluggish, because all stages subsequent to the primeval cell-proliferation are either excessively slow or absent; invading, because the older cell-formations produce no new tissue, but only fresh growth of cytoblasts. But such state of joint cannot persist for unlimited time; there must arrive for this granulation-substance a period either of organization or of destructive change. Just as an indolent ulcer, which has persisted for some time as an unchanging sore, will take on either a cicatrizing and salutary or an excavating sloughy and destructive action, so does this gelatinous mass take on formative or destructive tendency. The small remnant of the joint-cavity may open out into a large abscess; or isolated abscesses, from the size of a pea to much larger dimensions, will form in the substance of the false tissue, will open both outwards and inwards, leaving long, crooked, sinuous tracks, out of whose mouths crop exuberant and easily bleeding granulations continuous with, indeed, part of, the mass within. A careful examination of sufficient numbers of cases, to furnish examples of such condition in every stage, shows easily the process whereby such isolated abscesses are produced, and that they are connected with those yellow blotches which, as above-mentioned, are often found in the midst of the jelly-mass. This yellow color is simply due to a process to which all embryonic tissues are liable previous to breaking up, namely, the fatty degeneration, then bursting of the cells over-distended with oil, death of these, and suppuration of the surrounding parts.

If I have made myself understood in these explanations, it will be evident to my hearers that the obstinacy, the reputed incurability, of these cases depends not on too high, too violent, an action, but on want of action—on insufficient power to continue onward the processes which have begun. Therefore, joints in this condition are white and bloodless-looking, and their temperature, instead of being from two to three degrees higher than that of the other side, is frequently the same, and frequently lower. Therefore, I conceive that, to continue to keep such a joint at perfect rest, poulticed, or with lotions, is a mode of treatment much adapted to prolong such injurious inactivity; and I have for some long time past adopted frictions, pressure, passive, and then active movement, with considerable success, as several cases I could report would show. But from such reports I may here refrain, as I wish to introduce to your notice a more rapid and decisive method of dealing with such disease.

Let me again observe that the object of the treatment is to induce in this sluggish cell- or granulation-tissue such action as should prevent fatty or other forms of degeneration, and promote its formative action—its conversion partly into fibrous tissue, its absorption partly by the active work induced. As we stimulate indolent flabby granulations of an old ulcer or of a wound by nitrate of silver or sulphate of copper into the production of tissue, so it struck me I might also, by a direct application, stimulate sluggish tissue of a strumous synovitis into more healthy condition; and for this purpose injection of minute quantities of a stimulating drug seemed to me the most direct method. I therefore began experiments, injecting first one fluid, then another, but always with such caution that I never had an unfavorable issue nor evil result of any kind. It would be merely wasting time here to detail the several fluids that I have employed. The first used was iodine; and in none of my subsequent work have I found any so satisfactory. I began with a very weak solution, viz., ten minims of the tincture to an ounce of water. In all my later cases, I have employed half a drachm of tincture of iodine, filling up the ounce with water. I have little doubt that a still stronger solution might be employed, but this strength appeared to answer all the purposes required with sufficient rapidity.

This method of using the drug is simple: a syringe with very fine needle should be used, and care must be taken not to inject into the cavity of the joint, but into the thickness of the morbid tissue. Moreover, I need hardly, after what has been said, reiterate that proper selection of cases must be cared for. Injection must not be employed when any active inflammatory process is going on; the temperature of the joint must be not at all higher, or but a portion of a degree higher, than that of the other side. Moreover, there must be either no pain, or only that dull aching, which is rather a sign of fulness of veins than of arterial hyperæmia. Starting of the limb, the symptom above all others which shows that the cancellous structure next the articular lamella is inflamed, shows also that the time for this treatment has passed by, unless such starting be only occasional, and not severe.

When, in any case, all the favorable conditions are present, I puncture the skin in the softest and most prominent parts of the tumefaction, making from two to four punctures, as the case may demand or permit; into each of these punctures I inject about five minims of the fluid, withdrawing the needle a little as the piston descends, so that the liquid occupies a line rather than a spot of the tissue. After the injection, I use pressure by means of an elastic bandage, put on with such tightness as will just escape producing congestion or œdema of the limb below. The effects are quite painless save the puncture; in only one case out of seventeen has there been slight aching for about two minutes. In all cases, decreased size, increased hardness of the tumor, with disappearance of the dull aching pain has resulted, and renewal of use in the joint, to an extent according to the period when it came under treatment, *i. e.*, according to the amount of injury which the disease had already produced. This period is different in different cases; in some, the malady commences of itself as a painless, or all but painless, enlargement, the child running about gaily on a swollen and somewhat stiffened knee; in others, the attack begins as an acute inflammation, which only after a time falls into the sluggish stage. It is evident that in the one form much more damage may be done to the joint before this treatment can be used than in the other. The further parts of the treatment must depend upon these differences: in some of the former, we may hope to regain a joint with fairly free mobility; in others, this will be more restricted; and in the latter we must be content with only slight degree of motion. The amount of passive movement and of active movement to be employed in each case must depend on all these circumstances. I can only say that, as the tissues of the joint harden more and more under the use of injection, so may passive movement be used with considerable freedom.

The especial point which I wish to insist upon is that, after the first phase of the disease strumous synovitis—the fungoid disease of the joint is not inflammatory—is not over-action, but under-action; and that some treatment to excite action—not rest, lotions, etc., which discourage action—is the right method of treatment.

II. MILITARY SURGERY.

Extraction of a Bullet After 59 Years.

Dr. Henry Harland, relates the following case in the *British Medical Journal*, for August 29, 1874:

James Jenner, aged 83, fought at Waterloo, on June 18th, 1815, in the 44th Foot. In the thickest of the action, near Quatre Bras, whilst he was discharging his musket, a French bullet struck his forefinger. It passed through the proximal phalanx to the barrel of his musket, which it indented, and thence through the fleshy part of the ball of the thumb, down to the trapezium, against the palmar surface of which it became imbedded, and which probably arrested its further progress. Jenner immediately sought surgical aid; the wound was probed several times, but, as the bullet could not be detected, no attempt at extraction was made; he was never afterwards fit for duty. The wound remained open two years, and then healed, leaving so much induration in the palm as to render it very difficult for him to grasp his agricultural tools, and quite impossible to close the hand.

I first became acquainted with the patient twenty-five years ago. He has constantly worked as a gardener or agricultural laborer since his discharge from the army in 1816, excepting at those times when the hand has been unusually [illegible] About forty years ago, he was laid up three months, in consequence of irritation and lymphatic inflammation, induced by the bullet, and was frequently at other times incapacitated for several days at a time. About three months ago, when working on very hard ground, the hand became painful and swollen. An abscess formed and opened on the dorsal surface of the hand, midway between the metacarpo-phalangeal joints of the thumb and forefinger. I passed down a probe, and felt the bullet distinctly in the situation before mentioned. After enlarging the opening sufficiently, I had very little difficulty in dislodging and extracting the bullet with the scoop. It was blackened, and slightly flattened on one side, probably from its first striking the barrel of the musket. The patient told me that the English at that time used the ounce and spherical bullets, but that the French bullets were smaller. This weighed six drachms and five grains. The wound is rapidly healing; but considerable time must elapse before it is completely closed, in consequence of the depth of the sinus, which is kept open by being filled with lint soaked in dilute-carbolic acid.

The interest of the case consists in the fact of a leaden bullet remaining deeply imbedded upwards of fifty-nine years without producing more inconvenience. I think it highly probable that, during the patient's work on very hard ground, the bullet may have become dislodged from its long resting place, either by concussion of the tool against the ground, or by some pressure directly applied to the palm, and that the abscess resulted from its sudden and probably violent displacement.

Gunshot Fractures of the Limbs.

In the section for the Medical Sciences at the meeting of the French Society for the advancement of Science, held at Lille, last August, M. CUIGNET read a paper upon "The Consequences of Gunshot Fractures of the Limbs," the material for which had been principally derived from the examination of wounded soldiers who were applicants for pensions. The following are the conclusions which he arrives at:—1. Although during the late war amputation was resorted to more frequently than expectation, a larger number of the wounded survived through the agency of expectation than through amputation. 2. Expectation was more frequently employed in consequence of circumstances independent of the surgeon than as a fixed mode of treatment. 3. Recoveries through conservative treatment were obtained in spite of numerous removals and other unfavorable conditions, and in spite of the gravity of the wounds of the thigh, knee and leg—encouraging surgeons in the practice of abstention, especially when it is remembered that the means of transport and modes de ligation are continually improving. 4. Amputation is followed by very bad results, whether as regards life or function; and when it cannot be employed within the short delay which renders its consequence less disastrous, it ought to be abandoned in the majority of bad cases of comminuted fractures, reserving it for extensive mutilations. 5. Resections, which are as unfavorable as amputations in regard to the chances of life, do not in general furnish good results in respect to function. This is especially the case in resection of the elbow, which should be proscribed almost as completely as amputation. 6. M. Cuignet therefore comes to the general conclusion that expectation will insure the lives of the wounded, and the preservation of the functions of the parts, more effectually than the most skilful and most active intervention.

During the discussion which ensued, M. Ollier observed that, although an advocate of conservative surgery, he could not follow M. Cuignet in his conclusions; and, in fact, in order to justify them, it would be requisite to have an account no only of those who survived, but also of those who had died under the system of abstention. His own experience as regarded excision of the elbow led him to a different conclusion. This operation, proscribed from the beginning of the war by one of the chief military authorities, was too seldom practiced. He had himself performed it seven times during that period, and only one of these patients died of a cause quite independent of the operation. Of these six cases, in three a stiff joint ensued, the limb having been forgotten in its splint; but in the other three satisfactory motions were obtained, the extensor power being sometimes almost normal. This is surely a better result than would have been derived from expectation; and in excision of the shoulder excellent results may also be obtained when the circumflex nerve, and consequently the contractility of the deltoid, can be preserved. As a general conclusion, he considers that excision of the upper extremity is good practice, especially when the periosteum can be preserved—an operation requiring both time and attention. He condemns hasty amputations, believing that a limb with even incomplete movements is preferable to an artificial limb.

M. Laussedat, speaking from what he had observed at Brussels during the late war, considered the practice of abstention excellent. In thirteen cases of very bad fractures of the limbs, aggravated by the absence of all prior treatment and by successive transports during several weeks, recovery took place in all of them, and that notwithstanding the existence of purulent sinuses, resorptive fever, and other complications. This result was the more remarked, as in a neighboring ambulance, in which amputation was of frequent occurrence, all the patients died.

M. Giraldès believed that M. Cuignet's conclusions were too rigorous, especially as regards wounds of the elbow. During the June days of 1848, when the round projectiles were in use, abstention was practised, and all recovered. But during the late siege, acting upon his recollections of 1848, he tried to treat the wounds of the elbow by expectation, and all his patients died—the fragments of bone keeping up suppuration, led by their presence to osteo-myelitis, and at last rendered even amputation impossible. The conclusion he draws is that in surgery we must not lay down too general therapeutical rules, but must be guided by the circumstances amidst which we are placed.

M. Verneuil believes that no accurate statistics can possibly be derived from military surgery. During war-time special localities or special circumstances may render any procedure, whether active or passive, alike in its results. Thus at the commencement of the siege of Paris in September and October, all went on well, the wounded all recovering, however treated. But from November the scene changed, and it might almost be said that a wounded man was a dead man. With respect to injuries of the elbow, M. Verneuil sees a good many cases from railway accidents at the Lariboisière, and he never performs primary incision. He has often, however, to resort to secondary incisions, compelled to it by the bad results obtained from expectation, which certainly should not be raised into an absolute rule of treatment in injuries of the elbow. As to M. Laussedat's thirteen cases, they demonstrate nothing as to the superiority of expectation, for during the many weeks traversed by them there was ample time for those to die also whom the practice of abstention killed.

M. Trélat observed that since the writings of M. Sédillot, and the publication of the statistics of the Crimean and Secession wars, etc., conservative surgery, proceeding hand in hand with the improvement of apparatus, has gained considerable ground. M. Cuignet states that too many amputations were performed in the late war; and if so this may have been somewhat due to the youth and inexperience of the surgeons who had to be recruited. Another reason, however, for numerous amputations may be found in the great employment which was made of artillery, which induced such great destruction of soft parts as almost necessarily to lead to amputation. As to the influence of circumstances, numerous examples have occurred. Thus, after the battle of Mouzan, shortly prior to that of Sedan, all the wounded did wonderfully well, operations and expectations alike succeeding, owing to the excellent *morale* of the soldiers. Nine days afterwards the Prussian occupation came, with its requisitions and privations. The *morale* is changed; gangrenes and infections appear, and all success has vanished. The therapeutics and statistics of the fields of battle will not follow any general laws, and we have only to do with indications and facts dependent on local circumstances. This reservation borne in mind, we may yet admit that conservative surgery is, and ought to be, the general tendency of the present time.

M. Cuignet, in reply, observed that if he had stated his conclusions somewhat strongly, this was because he well knew the partiality entertained by military surgeons for amputating, so that this is still performed in excess. We have no statistics on the matter, it is true, but we have only to listen to the statements of the surgeons themselves, and to those of the wounded. Moreover, if out of thirty applicants for pensions twenty-four are found to have been treated conservatively, and six by amputation, is it not a fair conclusion, in the face of the great frequency of this latter, that this inequality in the relative number of the survivors is dependent upon the number of fatal results proceeding from amputation?

Gunshot Wound of the Chest.

The following cases from the Bellevue Hospital, New York, are reported in the New York *Medical Journal*, August, 1874:—

Two cases of this injury have been under treatment recently in the hospital. In one of them the ball entered between the third and fourth rib, inside the nipple, and emerged at the lower angle of scapula. The patient was taken to the hospital an hour or two after the injury, and was then suffering pretty severely from the shock. An examination of the chest showed flatness over the lower portion from internal hemorrhage, as was suspected. In four hours after, the flatness extended over the whole of the chest; whether this was due to increase of the hemorrhage or to pleurisy, it was impossible to determine; the condition of the patient showed no signs of increase of loss of blood. The symptoms the patient complained of were severe pain, with dyspnœa. He steadily improved, and in about six weeks was able to walk about. The surgical treatment consisted in covering the wound with lint, and keeping the patient quiet.

The second case was not so severe. The ball entered between the fourth and fifth ribs, at the outside of the nipple, but did not emerge. When the patient came into hospital there was not much shock, but considerable flatness over the lower part of the chest. From the beginning, patient did well, and in about three weeks was able to be about. His greatest pain was felt at a point posteriorly, and it is supposed that the ball may have impinged on a nerve and caused some injury to a branch. Eventually the pain was relieved.

III. MECHANICAL SURGERY.

A Handy Aspirator.

The following suggestion is made in the New York *Medical Record*, August 15, by Dr. Andrew H. Smith, of New York:

As the aspirator in general use is always expensive, and often not at hand, a substitute which may be arranged from the material at the command of almost every practitioner, will often be found useful.

Take a common pint bottle, fit it with a good firm cork, pierce the cork with a rat-tail file, and fit into it a piece of glass tube about three inches long, leaving about an inch projecting above the cork.

A hollow needle of appropriate size, attached to a piece of rubber tubing about two feet in length, completes the apparatus. In using it put a teaspoonful or two of ether into the bottle, fit the cork in tightly, and set the bottle into hot water. Thrust the needle into the cavity to be emptied, and when all the ether in the bottle is vaporized remove it from the hot water and slip the free end of the rubber tube over the tube in the cork. As the ether condenses a vacuum is formed, and the aspiration is effected as completely as by the most perfect instrument constructed for the purpose. The effect will be a little more prompt if cold water be poured over the bottle. The thinner the glass, the less will be the risk of the bottle being cracked by the heat.

By adapting the needle directly to a cork and this to a small slender test-tube, we have a very convenient pneumatic exploring needle. A drop or two of ether is in this case sufficient, the surplus vapor passing off through the needle before the puncture is made. The tube serves as a handle when the instrument is used, and at other times, by reversing the cork, as a case for the needle.

Apparatus in the Treatment of Fractured Clavicle.

The *Southern Medical Record*, August, 1874, says:—

From the multiplicity of contrivances from time to time presented for the treatment of clavicular fracture, it may seem entirely superfluous to advance anything which shall claim to do more than has, long since, been done. This we do not at all attempt; it is only the *manner* in which it shall be accomplished that is simplified by the plan we have to describe.

It is unnecessary to repeat the indications for treatment, or recapitulate the various methods for their carrying out, in fractures of this bone. One thing is *certain*, their *perfect* fulfillment is *impossible*. No apparatus ever yet devised has accomplished it, and, according to the highest authority on fractures in this country, Prof. Frank Hamilton, "the third indication to carry the shoulder out, still remains unaccomplished, * * * * * nor have I much confidence that this end, so desirable, and so diligently sought, will ever be attained."

Since then, the most to be hoped for is to reduce the deformity to the highest *minimum* amount, and do this with the greatest comfort and safety to the patient. Any device answering this purpose cannot be without some features to commend it.

To accomplish this, we believe the recumbent posture, with the head low, and a pillow or other pad between the shoulders so as to allow them to fall outwards and backwards by their own weight, will yield results more satisfactory than any other plan whatever, but it is very exceptionally that a patient can be found who will submit to the long confinement in bed, and we are then compelled to employ some other form of treatment.

In this country and Great Britain, no other plan is so generally adopted as that of Fox, either as originally introduced, or with the modifications as recommended. After reviewing various methods, Prof. Hamilton reaches the conclusion that this is the one to be preferred, with the improvements suggested by himself.

Many surgeons employ adhesive plaster, confining the arm to the body, and elevating the humeral portion of the broken bone, by a broad strip passed around the elbow and over the shoulder of the opposite side. This plan stands first on the list of appliances recommended by Professor Gross, and Professor Sayre adopts one very similar, the only difference being the crossing of the arm behind instead of in front.

With some, probably the majority, this procedure will answer every purpose; but there are those on whom adhesive plaster produces an erysipelatous inflammation, and it cannot be tolerated. Again, in warm weather, it is sometimes excessively uncomfortable, and if it chance to be of inferior quality, scarcely anything will prevent it slipping, and thereby defeating the very object most desired.

The simple plan we have to present, which obviates all these objections, is as follows: a piece of unyielding leather, cup-shaped, to fit the elbow, to the outside of which is to be attached a strip of ordinary webbing, one and one-half inches wide, such as is used for driving-reins, provided with a buckle at one end, and a leather strap one-half inch in width, and five or six inches long at the other, the whole of sufficient length to reach from the elbow of the affected side, passing beneath the scapula of the same, over the opposite shoulder, and return. The forearm should be placed across the chest, a little above a right angle with the humerus, be passed over the fractured point, and properly secured to the webbing behind. If the piece fitted to the elbow be fastened about fifteen inches from the end to which the buckle is attached, the ends will meet opposite one or the other breast, and be more easily adapted than elsewhere. The elbow-cup is to be well lined with cotton, and the same interposed wherever the apparatus will be liable to press unduly, and, if desired, a firm pad can be placed under the shoulder-strap, so as to make the pressure direct upon the point of fracture.

This completes the dressing. No axillary pad; no fastening around the body, and no extra straps or bandages. It is light, comfortable and convenient. All that is required in its adjustment is to place the arm in position and buckle up the main strap, thereby elevating the shoulder, until the opposite fragments of the broken bone are directly in line. That it will accomplish its object, after the failure of other methods, the following case will attest:

September 12, 1872.—A. T., æt. 19, by a railroad collision, was thrown twenty feet or more in the air, alighting on his head and shoulders. He was taken up unconscious, and an examination disclosed an oblique fracture of the clavicle, at the outer end of the middle third. Patient was ordered to bed, head low, and pillow between the shoulders. Forty-eight hours subsequently, pain in the head having subsided, and confinement in bed being tiresome, he refused to remain longer, an the adhesive plaster dressing, as recommended by Prof. Gross, was applied. Tw days after it was loose; was reapplied, and over it the ordinary surgical rolle Three days later, erysipelatous inflammation showed itself at various points in th track of the plaster, and the patient making much complaint of this and the clo dressing, it had to be removed. We then employed the appliance above describ which proved perfectly comfortable, and answered every indication, save, of course, the *complete* carrying the shoulder out. At the expiration of the ordinary time, patient was discharged with union firm and direct, and no deformity, other than a very slight overlapping.

We claim nothing *new* in the dressing. It is merely a variety of the ordinary sling arrangement; but it is simple and effectual, and possesses an advantage over the handkerchief, simplest of all appliances, in being more easily managed and kept in place, as to commend it somewhat to the attention of practitioners, in the management of fractured clavicle.

Immovable Apparatus for Fractures.

At the close of an article on this subject in the New York *Medical Journal,* August 1874, Dr. F. Hamilton, says:—

In conclusion, I wish to say that, while I recognize the convenience and utility of plaster of Paris, and of other immovable forms of dressings, in the treatment of certain fractures, it has not proved satisfactory, under my observation, when applied in the treatment of fractures of the femur; and especially when applied immediately after the occurrence of the fracture—my own method of treating these fractures, without perineal bands, with side-splints, adhesive-plaster extension, pulley and weight, having given better results (with no accidents) in the adult. In the case of children, my double thigh-splint has also given better results than has plaster of Paris. These methods are far in advance of the double-inclined planes, and of Desault's, Boyer's, Hagedorn's, Gibson's, and other long splints. They avoid all danger of ligation and strangulation of structures; there is no perineal band to cause ulceration; extension is made by a method which equally—when properly applied—shuns the danger of ulceration about the heel, an accident so common with the old gaiter; the patients are comfortable; the limbs are seldom united with deformity; and the average shortening is less than with any other method yet devised. From these methods to the method now employed so much at Bellevue, is, in my opinion, a step backward.

Condition of a Faithful Measurement of the Thigh.—The fact that a man walks without a halt is no evidence that there is no shortening of the limb. In this regard patients are very unequal; one, having a shortening of only half or three-quarters of an inch, will limp perceptibly; while another, with a shortening of one inch or even one inch and a half, may not limp at all. This has been observed repeatedly. Nor is it any evidence that the limb is not shortened because, while lying in bed, the heel of the broken limb can be brought down to the level of the other. By pitching the pelvis, the spine remaining erect, the heel may be made to descend, in most persons, two inches or more.

Measurements made from the symphysis pubis, or from the round end of the anterior superior spinous process, are unreliable.

The patient should repose upon his back, upon an even surface, with his lower extremities as nearly as possible in a line with the axis of his body, the two wings of the pelvis being in the same horizontal (transverse) line.

A flexible, graduated tape-line is to be preferred to the steel tape-measure. The foot being steadied by an assistant, the surgeon should put his thumb-nail against the line where it joins the ring, and push his nail into the skin just *below* the anterior superior spinous process of the ilium, pressing firmly up and back, the back of his nail resting upon the skin. In this way he obtains a fixed point, and he can obtain an exactly corresponding point upon the opposite side. Below, the measurement may be made from either malleolus, but the outer has the most defined extremity, and is generally preferred. In most cases, for some months after the close of the treatment there is some œdema about the ankle, which renders it necessary to use great care in determining the point of the malleolus. The thumb-nail of the opposite hand may be used for this purpose, resting vertically upon the skin (flat against the lower end of the malleolus).

IV. FRACTURES AND DISLOCATIONS.

Fracture of the Clavicle.

Dr. A. R. Kilpatrick, of Texas, writes to the Southern *Medical Record*, September, 1874:—

This is a fracture met with oftener than any other, and having seen in sundry medical journals different plans of bandaging and treating it, I have concluded to add one not enumerated. The Philadelphia *Medical Times*, for March 7th, 1874, has a plan laid down by Dr. Lewis A. Sayre, to use broad strips of adhesive plaster, which he calls "my adhesive plaster dressing for fractured clavicle."

We all know that bandages fail to hold the shoulder and fractured bone in position, unless the patient is closely confined. Adhesive plaster becomes detached and loose in a day or two, requiring renewal. The indications are to keep the shoulder elevated, and thrown rather posteriorly, or else the ends of the fractured clavicle will miss opposition, and the bones become lapped. I have seen cases of such bad surgery requiring re-fracture, and treatment *de novo*.

I always use the *yoke-splint*, made of wood of a light quality, yet strong and firm. The splint should extend behind the neck, from an inch beyond one shoulder point to the same distance beyond the other. These splints are, in all, outfits of wooden splints, and if one of an unusually large size or small size is needed, any good workman can easily shape one out of poplar or maple wood. Have it padded well inside with cotton, and a notch cut to fit the neck. Have strips of garter stuff, or soft leather, tacked on each end to pass under the arms, and a buckle on one end so as to fasten and hold the shoulders steady.

Having the yoke-splint ready, reduce the fractured ends and adjust the splint over the shirt or under-dress of the patient, and turn him or her loose. I have treated many cases with the yoke-splint, and allow the patient, be it child or adult, to walk about and take moderate exercise, and I have met with no failures, nor any bad cures. As the case progresses, the splint should be noticed, as it sometimes is loosened by the patient, or the strips under the armpits may become loosened and require tightening. If the strips cause soreness or abrasion under the axillæ, carded cotton, or bits of old soft quilt, can be so placed as to give relief.

The splints are scooped or troughed out similar to a bread-tray, so as to fit the curvature of the shoulders, and the padding inside is fastened with tacks.

The Value of Prompt Reduction in Fractures.

At a meeting of the Wayne County Medical Society, quoted in the *Indiana Journal of Medicine*, October, 1874, Dr. **Haughton** read a paper on Fractures, calling attention to the responsibility surgeons were compelled to assume in their treatment, the increasing disposition on the part of patients to bring suits for mal-practice, and often the too willing adverse testimony from jealous competitors in practice. He referred to the discrepancy that often existed in the testimony of experts who were called to testify in the courts, and regretted that there was as great a want of unanimity among the great authors. The only points on which they are agreed, are the great frequency of fractures and the difficulties in the way of their successful treatment. In the details of treatment, writers are constantly at variance with each other, and often contradict themselves. Upon one thing the teaching of modern times has settled, that is, the necessity of perfect coaptation and complete immobility of the divided ends of the bone. Dr. Haughton attacked the views set forth in Holmes' Surgery, in which it is advised that in cases characterized by excessive ecchymosis, or if before the patient is seen much inflammation has supervened, immediate reduction is not to be attempted, but measures are to be used to combat the inflammation, and reduction only effected after it is subdued. As well as that class of cases attended by spasm, in which the spasm is to be overcome by opium or chloroform before reducing the fracture. Dr. Haughton thought such teaching pernicious, and that it was by following the advice of this writer, and others high in authority whose teachings were as full of error, that many surgeons laid the foundation for mal-practice suits; he quoted from Le Gros Clark, South, Chelius, and others, showing that the same heresy had been indicated from an early day. In his own practice he had fully disproved these several propositions as well as that of Syme of Edinburgh, viz: that extension should be abandoned, and that he had obtained satisfactory success by keeping in mind the necessity of prompt reduction, coaptation of the parts and complete immobility, employing when practicable extension and counter extension to assist in accomplishing these objects. He had tried various appliances and had found many of them extremely valuable, but believed that Woods' Hammock Splint, lately offered to the profession, would by filling more indications prove of greater value than any yet invented.

Successful Treatment of a Case of ununited Fracture of the Tibia and Fibula.

Mr. **George Lawson** reports the following cure in the *Lancet*, October 17th:—

The facts are briefly as follows: On June 30th the patient fell from a scaffolding a distance of twenty feet, and struck the back of his head. There was a starred wound of the scalp, and the bone over the occiput was laid bare, but no fracture could be made out. At the same time the tibia and fibula were broken in the manner described below. The patient was unconscious on admission, and remained in this state until till the 6th of July, when he appeared to recognize his wife. It was not, however, till the 16th of July that he became fully conscious, and even then he suffered from a partial loss of memory. The wound in the scalp readily healed, but the fracture of the bones of the leg showed very little signs of repair. The case seems to have been one of *retarded* union, rather than one of *non-union.* This explanation appears the more plausible when it is borne in mind that the splint was changed twice in three weeks. The MacIntyre splint which was first applied was removed on July 6th, because the patient was so restless that the apparatus could not be retained in its proper position. On July 20th the splint was again changed, the ordinary Cline's splint being substituted for the Liston's long splint that was applied on the 6th. Although some callus was thrown out, proper reparative action did not take place till the limb was kept in a state of complete rest, and the fractured bones made perfectly immobile by means of a strong plaster-of-Paris mould.

The fracture of the right tibia in the lower third was oblique, the upper fragment overriding the lower, and projecting forwards. The fibula was also broken in the same situation, and there was about one inch shortening. The limb was put up in a MacIntyre's splint, and ice bags were applied to the leg. On July 6th the MacIntyre's splint was changed for a Liston's long splint on the outside and a Cline's splint on the inside. On examining the leg on July 20th there was found to be no sort of union, and as Liston's splint was somewhat irksome, the fracture was put up in an ordinary Cline splint. At the end of a fortnight the leg was examined, and, although some callus had been thrown out, the bones were still ununited. Accordingly, on August 4th (5th week), it was determined to try the effect of encasing the whole limb from the middle of the thigh to the toes in a solid mould of plaster-of-Paris, to ensure complete rest and to keep the fractured ends in perfect apposition, and at the same time to restrain the action of the muscles. The leg was first enveloped in a thin layer of cotton wool, over which a loose bandage was applied, and the whole was then surrounded by a plaster-of-Paris mould several inches in thickness. As the plaster set a great deal of heat was given out, which produced some discomfort, but this soon passed off, and the patient lay without suffering further inconvenience, except that produced by the weight of the splint. The base of the mould was made broad and flat, to prevent tilting or rolling of the leg. On Sept. 5th the plaster was removed by being carefully split up in various directions, and the bandage cut through, when the bones were found to be firmly united. The skin had not suffered in the least.

A Simple Method of Reducing the Dislocation of the Forearm Backwards.

Dr. Alex. Murray, of New York, writes to the New York *Medical Record*, July 1:—

James Johnson, aged 36 years, a blacksmith, is a large, healthy, muscular man. On the 8th of March, 1874, while driving a horse and wagon through Tenth street, he was thrown with violence to the ground and sustained a dislocation of the elbow-joint. He stated that when he fell he instinctively extended his arms forwards to save his head and face from injury, and believes he received the force of the fall on the palm of the right hand. His companion, who was riding in the wagon with him, was also thrown out, and fell directly against the injured arm, which was probably more directly the cause of the dislocation than the violence of his own fall. On recovering himself he found the joint nearly immovable, and was unable either to straighten it or bend it to a right angle. Previous to his visit to me, his friends had made several ineffectual attempts to reduce the luxation. I saw the man about four hours after the receipt of the injury, holding with the sound hand the fingers of the dislocated arm, to prevent any motion of the limb.

On examination, I found considerable swelling around the joint, shortening of the forearm, the olecranon projecting nearly two inches backwards and upwards—i short, a complete dislocation of the ulna and radius backwards.

The first case which came under observation for treatment by the method I sha presently describe, was in June, 1854; and was that of a man named Ell mechanist, residing at Eighth street near Avenue C, an employee at the "Novelty Iron Works." He was an athlete, a powerful, muscular individual about thirty years of age. He had been on a drunken frolic for several days, and from the effects of his debauch and a few falls, had lain in a sort of stupor for three days, altogether unconscious of the injury to his elbow-joint. On the fifth day after the occurrence of the accident, two physicians were engaged for nearly an hour in endeavoring by the use of pulleys, etc., to reduce a luxation of the forearm backwards. They were about sending the man to Bellevue Hospital for treatment, when my assistance was requested. We could not by any argnment induce our patient to submit to etherization. I requested the man to stand up, and asked him if he would not take a little good brandy, and with a strict injunction that he should not drink it until such time as I should give him permission. My object by this little diplomacy was to withdraw his attention directly from the nature of his injury and the result which I was desirous of accomplishing.

I took my position at the outside of the dislocated arm, and placed the palm of my right hand to the palm of his left, dove-tailing my fingers between each of his fingers. In this way I had secured a firm hold to make extension. I then placed my elbow as a fulcrum and for counter-extension on the forearm in front and against the lower end of the humerus, and by a steady pressure downwards and backwards, and at the same time flexing the forearm towards the shoulder, I caused the luxated bones in a few moments to slip into their natural place.

I am not aware that this mode of reducing luxation of the elbow-joint has been adopted by any other physician, nor do I find any reference to it in our works on surgery.

Sir Astley Cooper recommended placing the knee between the arm and forearm (bend of the elbow), and by forcible flexion of the latter reduce the dislocation. This method suggested the one I have already detailed and practically tested in a few cases.

The incomplete or lateral dislocation, with or without fracture of the olecranon, can also be reduced in the same manner. The advantages of the above method are, that we have a ready means at command to make extension, counter-extension, also a fulcrum and leverage power; all of these aids can be brought into harmonious action at the same moment, to overcome the muscular resistance which opposes the reduction of the luxation. From its simplicity and easy execution we can reduce a dislocation of the ulna and radius backwards in two or three minutes, without the assistance of a second person, or of anæsthetics or pulleys. Although the reduction of this form of luxation is not generally attended with much difficulty, yet we do occasionally meet with cases which give considerable trouble.

I have met with six cases of complete dislocation of the forearm simply backwards; two of these were in school-boys, aged twelve and fourteen years, respectively, and four in adults. Five were reduced by the method I have already described, and one in the manner recommended by Sir Astley Cooper.

If the injured individual should be too weak, or unable to stand erect, he should be seated sideways on a chair, and made to grasp its back firmly with the sound arm, while the surgeon takes his position at the side of the injured limb parallel to the patient.

V. AMPUTATIONS AND RESECTIONS.

Resection of the Shoulder Joint for Gunshot Wounds.

At the last meeting of the British Medical Association, Sir J. R. MacCormack reported the following case:

A. B., a strong muscular man, aged thirty-nine, was by trade a mason. The exigencies of the Franco-German war made him a soldier, and the Communistic civil war converted him into one of the pseudo-military masters of Paris. He was wounded at the bridge of Neuilly on the afternoon of April 12, 1871, and was, an hour or two afterwards, brought to the Ambulance Anglaise in the Rue d'Aguesseau. A rifle bullet had entered from behind at the top of the right shoulder, and had made its exit in the anterior aspect of the upper third of the arm, smashing in its traject the head of the humerus and the upper part of its shaft. The operation was (early next morning) performed by Sir John Cormack, assisted by his son, Mr. J. R. Baillie Cormack. Neither of the two apertures made by the bullet could be utilized in the operation. Sir John, therefore, made a single longitudinal incision at the outer side of the joint through the deltoid, and in the course of its fibres, exposing well the bone. Having dislocated the head of the humerus, Sir John dissected out the pieces—more than twelve in number—of the smashed head and shaft. Having carefully examined with his fingers the irregularly fractured end of the humerus, pushing and pulling each of its jagged points so as to enable him to determine whether the shaft was or was not split down towards the elbow, he came to the conclusion that the remainder of the shaft was sound. He therefore forthwith completed the operation by removing the irregular end of the bone. Mr. Baillie Cormack grasped the arm a little above the elbow, and so manipulated it as to push the bone through the incision, whilst Sir John, holding the extremity to be removed in his left, used a small saw with his right hand. The operated arm was then flexed at the elbow, and laid across the chest. It was securely, but with very little pressure of bandages, attached to a concavely moulded oakum-padded pasteboard splint, so that it might be easily examined without causing pain or displacement. Cold water dressings were applied by means of light compresses, and were diligently continued during the day. There was a considerable sanguineous oozing for some hours. In the evening the cavity was syringed with creasote water, when five or six minute pieces of bone were washed out. More solid bandaging was afterwards adopted. From immediately after the operation, the patient was able to use the hand, the thumb, and each finger. He could also squeeze tightly with the hand. Sensation in arm or hand was never in the slightest degree impaired. When A. B. recovered from the operation he was taken to prison, and was afterwards tried by court martial at Versailles. To his own great surprise, he was acquitted. Exactly one year after the operation—that is to say, on April 12, 1872—a photograph was taken, which was exhibited to the meeting. In the photograph the patient is holding the removed portions of his humerus in the hand of the operated arm The fragments have been joined together. The portions of excised bone were shown to the meeting. The length of the removed portion of the humerus is three inches and a half. When the photograph was taken the patient was (as he is now, August, 1874) in excellent health He can make good use of his arm in many ways; he can lift with it great weights, such as large pails of water and baskets of coal; he can write; and he can work a sewing machine with it. He can place the palm of the hand on his forehead. To the casual observer, he can do everything with his hand and arm which others can do; but it is not so: he cannot far separate the arm straight outwards from the side. The false articulation is marvelously strong and flexible. There is not the slightest atrophy of any of the muscles except the deltoid, which is much smaller than that of the opposite side, though now it has not nearly so wasted an appearance as it had twelve months ago. The author described the general principles upon which he had treated several very severe shot and shell wounds, dwelling particularly upon the manner in which he had employed opium, cinchona, aliment, and fresh air as the most important curative agencies.

V. LOCAL SURGERY.

(a.) HEAD, NECK AND CHEST.

On Goitre or Bronchocele.

Dr. J. Fayrer, in the *Lancet*, October 24th, 1874, says:—

The subject of goitre is one which has received much attention from observers in various parts of the world, and all seem to concur in the opinion that wherever it occurs, and however varying the conditions under which it presents itself, one unvarying and probably essential element in the causation is the presence of lime in some form in the drinking water; and that whilst, on the one hand, it is found chiefly, if not entirely, in districts where the geological formation is characterized by the presence of magnesian limestone, on the other, that it is absent from parts of the country which, though in other respects similar, differ in this, that they are noticeable for the absence of lime. My experience of the disease is chiefly such as I have obtained in India, though I have had also opportunity of observing it in the valley of the Rhone and in other parts of Switzerland; it is therefore with reference to bronchocele as it occurs in India that I would offer a few remarks, which would probably have suggested themselves had I been present at the meeting to which I have alluded.

The almost universal testimony of observers is in favor, then, of a calcareous origin, and the evidence adduced leaves little doubt of its general truth; wherever the disease occurs, whether in the old or new world (and its geographical distribution is very wide in both), goitre is coincident with the occurrence of geological strata characterized by the presence of limestone rocks, or their detritus, which, being washed from the hills into the plains, impregnates the soil and water of contiguous districts.

The late Mr. Brett, of the Bengal Medical Service, alluding to the exciting causes of the disease, remarks that the general conclusions arrived at by Messrs. M. Clelland and Inglis respectively, in India and England, show that "in primitive districts, where limestone does not exist as a principal rock formation, goitre is not found, or, if found, it is in the proportion of one to five hundred of the population; whilst in transition districts, where limestone prevails, one-seventh of the whole population is affected with goitre." And that further, "the population is not equally affected in every village, one being affected in the midst of others which are healthy, and *vice versâ.*"

Lofty localities, deep mountain valleys, marshy districts, snow water, water impregnated with vegetable or other matter, the use of particular articles of food, deterioration from frequent intermarriage, changes of temperature, have also each and all been charged with producing goitre, though probably without sufficient reason.

Now, although it is probable that bronchocele occurs most frequently under conditions which appear to indicate a calcareous origin, and also occasionally under circumstances which appear to suggest other causes, such as those I have referred to, yet none of these seem to be altogether conclusive, and it is probable that the real cause has yet to be discovered; for the disease undoubtedly may make its appearance where none of these are present, as it sometimes may be absent even where they prevail.

Goitre is exceedingly prevalent in some parts of India, and remarkably so in certain districts which are marked by their extreme insalubrity in other respects. The whole extent of the Terai—that is, the forest and marshy land,—the Piedmont, which ranges along the foot of the Himalayah, and where the most deadly forms of malarious fever prevail, abounds in goitre; and Major Holmes, who, when commanding at Segowlie in 1857, made it a special subject of investigation, writes as follows:—"In the districts about Motibarie, Segowlie, Bethia, Bhagolia, and on to Gorruckpore, indeed along the whole line of the Terai, the goitre is so prevalent that it can hardly be an over-estimate to state that in many localities one individual in ten is afflicted with this terrible disorder." And it appears that, in the cold season of 1854–55, Captain Cunningham, another officer of the 12th Irregular Cavalry, who was stationed in the Terai, and who seems to have made a discovery in therapeutics which would have done credit to any medical officer, treated about 25,000 cases, as many as 500 a day coming to him for this remedy, and with great success. For this interesting and very important information we are indebted to Inspector-General Dr. F. J. Mouat, who placed it on record in the Indian Annals of Medical Science of October, 1856. Of the remedy more anon.

I cannot pretend to any such experience of the disease as that related by Major Holmes and Captain Cunningham; but in frequent visits to the Oude Terai, on tiger-shooting expeditions, I had had opportunity of seeing how grievously the inhabitants of these districts suffer, and I have long been under the impression that the malaria which causes fever anæmia, leucocythæmia, enlarged liver and spleen, and the consequent cachexia so prevalent in those districts, is also concerned in the production of this abnormal condition of the thyroid gland; and considering the analogy of this to other blood-vascular organs, particularly the spleen, it is not unreasonable, I think, to suppose that what so seriously affects one may in some degree compromise the other.

It is possible, at all events, that the combination of the malarious influence affecting both water and air, the impoverished diet, and other unfavorable circumstances under which those people maintain existence, may, when added to the more generally recognized cause—calcareous impregnation of the water—to some extent account for the excessive prevalence of goitre in the parts of India alluded to. Not that it is by any means confined to the Terai; for there are few parts of India where it may not occasionally be seen, and some villages and communities, such as parts of Tirhoot, at a considerable distance from the submontane regions referred to, furnish ample proof of its more general distribution, and that the causes exist elsewhere.

With regard to the presence of lime in water as a cause in the Terai districts, Colonel Sleeman has pointed out, in his work on Oude—"The kingdom of Oude must once have been the bed or part of the bed of a large lake formed by the diluvial detritus of the Himalayah chain; and, as limestone abounds in that chain, the bed contains abundance of lime, which is taken up by the water that percolates through it from the rivers and from the rains and floods above. The lime thus taken up and held in solution with carbonic-acid gas, is deposited around the small fragments of flint or other hard substances which the waters find in their way." These nodular masses are called "kunker," and are the staple for road-making in India. They consist, according to O'Shaughnessey, of carbonate of lime, silica, alumina, and sometimes magnesia and protoxide of iron. Their existence, in fact, accounts for the presence in the water, which has percolated from the hills and infiltrated the subjacent soil, of agents which are generally considered to be so potential in causing bronchocele.

In a valuable paper contributed by Mr. H. M. Greenhow, of the Bengal Medical Service, to the *Indian Annals of Medical Science* of July, 1859, he alludes to the presence also in the water, from similar physical causes, of salts of sodium; but it is questionable if this can be regarded as having anything to say to the causation of goitre, though it is suggested as worthy of consideration by Mr. Greenhow, who remarks: "I cannot help concluding that drinking-water containing lime is the main cause of goitre. At the same time it must be admitted that the exact mode of action of this calcareous water on the system is as yet unknown to us; and it is also, as it appears to me, uncertain whether other circumstances do not aid the development of goitrous tumors. One of these circumstances is the impregnation of drinking-water with soda, and possibly potash. I do not know that carbonate of soda, which is very probably connected with the lime in the water, has ever been specially referred to as taking a part in the causation of goitre. Dr. Inglis, indeed, as before noticed, mentions that in Tirhoot, where goitre is very common, the soil is saturated with saltpetre, but that is all. Now, as I mentioned in noticing the topography of Secrora and the trans-Gogra division of Oude, the soil contains a great quantity of soluble salts, which are deposited on its surface, and which render it *oosur*, or barren; and this is the case not only in Oude, but in Scinde, in Egypt, and probably, as General Sleeman remarks, in the 'greater part of the deserts which now disfigure the face of the globe in hot climates.'

"The chlorides (and nitrites) of sodium thus brought to the surface affect the soil, and of course must affect the water too; and whether the resulting carbonates play a part in producing goitre seems an interesting question, and one on which I should gladly be able to offer more evidence. I throw this out more as a suggestion for future inquiry than anything else, and, indeed, as it does not appear that there is anything like the correspondence between the occurrence of salts in the earth and water and of goitre that there is between the impregnation of the water with lime and the prevalence of goitre, it may be that these salts have nothing to do with the causation of the disease.

"With regard to *race*, I do not think that this can be considered even as a predisposing cause of goitre, for we have all nations—Europeans, Asiatics, and Americans—affected by it. Among the natives of India I cannot make out that one *caste* is more prone to the disease than another. Most of my three hundred cases were Hindoos; but then the mass of the Oude population is Hindoo. The Mussulmans, I should suspect, are equally liable to it, for I have had many cases among them also—perhaps as many in proportion as amongst the Hindoos. Of the latter, no one class seemed to be more liable to the disease than another."

Without expressing any positive opionion on the subject, I would merely again point to the extreme prevalence of goitre in the Terai, which is so extensively malarious, as suggestive of another origin in addition to the presence of lime or iron in the water of the springs or wells and subsoil drainage of that region. The association of goitre with cretinism, especially in Switzerland, is notorious, and in some localities it seems to be more common than in others; but it is remarkable that this is not so in the goitre of India, and especially in that of the Terai. Mr. Greenhow says that of three hundred cases of goitre, only one was of weak intellect, but not a cretin. Nor do I remember ever to have seen a well-marked instance of cretinism in India, though I have seen feeble and imbecile persons who were the subjects of goitre and spanæmia. Many who were the subjects of advanced goitre were otherwise strong and in excellent physical and mental health.

Mr. Greenhow further remarks, "that though in Switzerland the same causes may seem to conduce to the production of goitre and cretinism, there are some circumstances referred to which lead to occurrence of the latter which are not necessary to that of goitre, and that the converse is probably true. Cretinism appears to be an essentially hereditary disease, which goitre is not."

I have not noticed, nor has it, I believe, been observed by any one else, that goitre in India is associated with exophthalmos. If the morbid condition of the thyroid body depend on a neurosis, and a consequent disturbance of the normal vaso-motor arrangements, it seems to be limited to the thyroid body itself, and generally most remarkably to the right lobe. The extreme vascularity of this organ, which is supplied by four arteries, the united diameters of which, according to Hyrtl, is not much less than that of those of the brain, enables it to increase very rapidly under certain influences, and exposure of a few days to the exciting causes has been sometimes known to produce a well-marked bronchocele.

(*b*) THE NOSE, MOUTH AND THROAT.

Foreign Body in the Trachea.

At a meeting of the Brainard Medical Society reported in the Indiana *Journal of Medicine*, October, 1874,

Dr. Pattison reported the case of a lady, 40 years of age who has had very poor health for a long time. A short time ago she accidentally swallowed a piece of a saucer; it was of a triangular shape, two and a half inches long, and three-fourths of an inch wide, at the widest part, terminating in a sharp point. It lodged in the trachea. The patient by squeezing the trachea with her hands, below the offending crockery ware, with much pain and difficulty dislodged, and finally forced it out. This was followed by a great amount of inflammation and swelling, so that the trachea was entirely closed. She was unable to swallow anything for three days. On the fourth day, with considerable difficulty, the doctor passed a small gum-elastic catheter by the swelling, through which he injected into the stomach milk and other fluid nourishment. Mercurial Ointment was rubbed on the surface until it produced slight ptyalism; one side of the swelling had suppurated and was discharging matter. She is now able, with much difficulty, to swallow fluids. There is also cough, and wakefulness.

The Etiology of Acute Ranula.

We learn from the London *Medical Record* that at a meeting of the Société de

Chirurgie, held on June 3d last, M. TILLAUX read a note upon acute ranula (*Le Progrès Médical*). Hitherto he had considered that the obliteration of the ducts of the sublingual glands, and the accumulation of the liquid contained within them, accounted for their formation. But this is not sufficient to explain the origin of ranulæ which arise suddenly. M. Tillaux had seen a man who went to bed perfectly well at 10 o'clock at night, and at three in the morning he awoke with a large tumor under his tongue. A woman who was going down stairs, and another who was sitting by the fireside, were attacked equally suddenly. These tumors were encysted, and contained a clear, thin fluid, very like saliva. M. Méhu, who analyzed it, could not pronounce exactly upon its nature. Some authors consider that these ranulæ are produced by the exaggerated dilatations of Wharton's duct; but this duct is far from being very dilatable, as M. Tillaux has proved by direct experiment. He has injected and inflated it with considerable force, and the utmost size it attained was that of a crow-quill. When the pressure was increased, the duct gave way. But in the neighborhood of the duct there is a cavity capable of containing a certain quantity of liquid—viz., Fleischmann's bursa, which M. Sappey said he had been unable to detect. M. Tillaux exhibited two specimens in which this synovial sac was very perceptible. It is triangular, situated between the frænum and the genio-glossus muscle, which it penetrates to the depth of about 27 millimètres. Wharton's duct is separated from it only by a very thin membrane. If, then, there was an opening from this duct into the bursa, it would be sufficient to produce a ranula. But Wharton's duct is very tough; it is necessary, therefore, to suppose that, while an obstruction prevents the flow of saliva, there is some degeneration in the walls of the duct which determines a rupture.

M. Dolbeau did not consider that M. Tillaux's theory was sufficient to explain certain forms of sudden ranula. Four years ago M. Dolbeau had seen a lady who was threatened with suffocation in consequence of a sudden tumefaction of the floor of the mouth. Spontaneous resolution took place, but the patient died shortly afterwards from congestion of the lungs. A market porter applied for advice with a retroverted tongue, under which was a large tumour. Wharton's duct was free. The tumour disappeared rapidly, but a small submucous abscess was formed. M. Tillaux's suggestion does not explain the spontaneous dispersion of the swelling.

M. Duplay did not believe that the fluid contained in a ranula was always analogous to saliva. It rather resembled the liquid of mucous œdema. Nor is the tumour always encysted. M. Duplay quoted cases in which Wharton's duct was much dilated, and constituted a true ranula. M. Tillaux ought to have experimented upon a diseased duct if he wished to ascertain its degree of dilatability.

M. Lefort did not believe in the existence of a serous sac beneath the tongue.

M. Tillaux had examined histologically the membrane which lines this cavity. It exhibits all the elements of a serous membrane. The principal object of his communication was to demonstrate the existence of this membrane, and it seemed to him that it explained certain cases of ranula. The examples cited by M. Dolbeau were not of the same kind as his own. His explanations applied only to encysted ranulæ arising suddenly, and containing a clear, thin fluid.

(c) THE EYE AND EAR.

On Serous Cysts of the Iris.

It is stated in the London *Medical Record*, that in Zehender's *Klinische Monatsblätter für Augenheilkunde* for April and May, Dr. HOSCH, of Basel, and Dr.

Sattler, of Wien, have papers on the serous cysts which occur in the iris. The theories given as to their origin are discussed, that of Von Wecker being that all such cysts have their origin from the folding in and attachment of such folds of the iris, either with or without a wound in the cornea; while Rothmond holds that they have their origin only by the carrying of corneal epithelial cells into the iris, after or during the infliction of corneal wound, and that these cells increase in their new position, secrete, and so form a cyst within the iris-tissue itself. Dr. Hosch describes the microscopic anatomy of an eye, in which an iris-cyst had occurred after a wound, and which was removed on account of sympathetic ophthalmia of the other eye. The cyst was about five millemètres deep, lying in the tissue of the iris on the one side, while on the other side it was bounded by the ciliary body, sclera, conjunctiva, and cornea. He thinks there had been a division in the iris-tissue arising from a wound at the corneo-scleral junction, which, after the consequent collapse of the anterior and posterior chambers, and the soldering of the anterior and posterior surfaces of the iris to the neighboring tissues, had been, on the closure of the anterior wound, filled by the re-accumulation of the aqueous humor and so formed the cyst. He considers that the case goes to support Von Wecker's theory as to the origin of such cysts.

Dr. Sattler had the opportunity of making microscopic examinations of three such cysts, and found that in all three the wall was composed of fibrous tissue, with a lining of large flat cells, consisting of several layers. In these cases, he believes he established the following facts:—1. The preceding of, and in itself, a trifling wound; 2. The presence of a cicatrix at the corneo-scleral boundary; 3. The commencement of the cystic formation long after the wound; and 4. The after-appearance of irritable conditions by the increase of the cyst, and the clothing of its inner surface by a variedly thick layer of flat cells. He thinks that the elements of these epithelial layers not only increase by division of the epithelial cells present, but receive additions from the cells in the stroma. In one case he found what he calls an anatomical peculiarity, capillaries in the wall of the cyst. Dr. Sattler is not fully satisfied with any already proposed theory of origin.

Etiology of Diseases of the Internal Ear.

At the conclusion of an article on aural diseases in the *American Journal of the Medical Sciences*, October, 1874, Dr. Roosa says:—

The causes of diseases of the internal ear, so far as they may be deduced from the cases I have seen in private practice, may be classified as follows:

Traumatic.—Injuries producing mechanical damage to the terminal auditory apparatus.		4
Long-continued exposure to concussions producing congestion and inflammation of the internal ear:		
Telegraph operators	2	3
Officers in navy	1	
Boiler-makers (not included in table)	8	
Idiopathic.—Hemorrhage into internal ear producing atrophy of nerve tissue		11
Inflammation of the parotid gland, from which a catarrhal or periosteal inflammation extended to the labyrinth		2
Cerebro-spinal meningitis producing inflammation of the auditory nerve or the labyrinth or both		8
Scarlatina causing an extension of pharyngeal or meningeal inflammation to the labyrinth		2
Measles producing same effect		1
Basilar meningitis extending to auditory nerve or labyrinth, or both		7

Primary inflammation of labyrinth or circumscribed (about root of auditory nerve) basilar meningitis	8
Internal administration of quinia causing congestion and inflammation of base of brain and labyrinth (?)	4
Dr. Duffy's cases	(3)
From causes unknown	14
Arrested development	1
Total	65

Pterygium from Traumatic Cause.

The following two cases reported in the New York *Medical Journal*, November, 1874, go to sustain Arlt's view of pterygium: that it consists of a slight abrasion or ulcer existing at the edge of the cornea, and, the conjunctiva being relaxed and excoriated, falls against it and becomes attached and dragged forward.

A patient was injured by the bursting of a bottle of nitric acid, but it was difficult to say how much entered the eye. When he was seen at the Infirmary, the day after the injury, the lids were somewhat swollen, and on everting them there was found considerable chemosis, with conjunctivitis.

A whitish eschar was also noticed extending from the lower part of the globe on to the cornea, to the extent of two or three lines.

A similar eschar was detected on the inner side of the conjunctival surface of the upper lid. The cornea was so hazy that the iris was not visible It is now about five months since the patient came under observation. At first hot fomentations were applied with the installation of atropine, but at present a ten-grain solution of nitrate of silver is applied to the lids on account of thickening. The present condition is rather interesting. There is a traumatic pterygium extending from the original site of the eschar, inferiorly to the middle of the cornea, and covering half the pupil. Above, there is an adhesion of the upper lid of the globe at the seat of the old eschar, impeding the action of the globe downward and outward. The pterygium and symblepharon, or adhesion of the lid, will be removed by an operation.

By Caustic Potash.—Patient accidentally threw some caustic potash into his right eye, and appeared, forty-eight hours after, at the Infirmary, complaining of much pain.

The lids were slightly swollen, conjunctiva much inflamed, with a slight amount of chemosis. Cornea quite hazy. A slight eschar three lines in extent was found on the lower part of the globe, extending as far as the lumbus cornea. The treatment consisted in the use of atropine.

It is now three months since the injury. There is a small traumatic pterygium extending from the old eschar into the cornea to the extent of two lines.

(*d*) ABDOMEN.

On Gastrotomy.

It appears from the London *Medical Record*, that M. Boinet says (*Gazette Médicale de Paris*, April 25, 1874), gastrotomy has been and may or ought to be practiced in certain lesions of the digestive organs. He quotes seven cases of accidental wounds of the stomach (from various sources) all ending in cure, and argues that a scientific operation should give at least equal chances.

In cases 1 and 2 the wounds appear to have been small, but large enough to allow the escape of beer in the one case and food in the other from the external opening. The first, treated by rest and the internal administration of alum, was well in seventeen days. The second was treated by three bleedings, and passed through a sharp attack of traumatic fever, with disturbance about the wound, but was quite well in seven weeks.

Cases 3, 4 and 5, were similar, but the wounds appear to have been larger and were treated by suture [By what kind of suture, and how used, is not clear.—*Rep.*] All recovered perfectly. In case 6, the stomach and part of the omentum formed a hernia which could not be reduced, as each attempt caused a curious suffocative paroxysm; later, an attempt to cure by suture failed, the stitches tearing out. Nature cured the fistula, however, in two months.

Case 7 is the well-known one of the Canadian who was wounded by gunshot, and in whom a fistulous opening remained, by means of which Beaumont experimented on digestion.

From these cases M. Boinet argues :

1. That openings made into the stomach do not necessarily cause death.
2. That they may be cured by suture.
3. That the great danger lies in the escape of aliments or blood into the peritoneum.

Hence gastrotomy for certain wounds and diseases of the stomach and intestines is a justifiable operation, provided great care to prevent escape of matters into the peritoneum be taken, or if any do escape they must be thoroughly cleansed out. He quotes the success of ovariotomy in support of his view.

On Cancer of the Stomach.

Dr. McCall Anderson, in the *Lancet*, October 24, reports the subjoined case:—

Admitted on the 20th February, 1874: Patient is a married man, aged thirty-three, and a plumber by occupation. He has six brothers and three sisters alive and well; but his mother, who is sixty-eight years of age, has been paralyzed for four years, and his father died at sixty-five, having been paralyzed for some time before death. He seems to have been temperate in his habits, but his diet has been defective and his meals irregular. Until the present illness commenced he has always enjoyed good health. For two months during the summer of 1873 he was exposed to the fumes emanating from the action of nitric acid upon lead, and two months after this, in October of the same year, he began to complain of pain in the stomach, coming on immediately after taking food. During the Christmas holidays he caught cold by throwing off his flannel under-clothing, and after this the pain became much worse, and was accompanied by vomiting. He now remained in bed for three weeks, and under medical treatment improved somewhat, but a few days after resuming work he complained of rapidly increasing debility; his legs began to swell, and all his previous symptoms returned in an aggravated form. The pain he describes as being burning or gnawing, giving him the sensation as if his stomach were on fire. At first, however, it was distinctly shooting or darting in character. The pain is greatly aggravated by taking food, but is relieved by vomiting, which generally occurs from three to seven hours after a meal. The vomited matters have latterly had a coffee-ground appearance on many occasions, and occasionally they have been as black as ink. He has all along suffered from flatulent distension of the stomach and bowels. His appetite has continued unimpaired until quite recently although he did not dare to eat much on account of the pain induced by taking food.

As a consequence, he has become much emaciated, and complains greatly of debility, He is very pallid, and his skin has a lemon tint. He has never been a smoker. Pulse 92; respiration 20; temperature 99.2°; tongue moist, red, and smooth; bowels very costive.

At the time of admission there seems to have been some suspicion of lead-poisoning; but on examining the abdomen, instead of retraction, which is usual in such cases, we found very decided distension; further, there was no blue line along the edges of the gums, nor was there the slightest tendency to paralysis of the extensor muscles of the fore-arm; so that the theory of lead-poisoning was dismissed as untenable.

The most prominent symptoms in the case were pain, vomiting, abdominal tumor, emaciation, and lemon tint of skin. The *pain*, at first shooting or darting, in the later stages gnawing in character, came on immediately after food was taken, was relieved by evacuation of the contents of the stomach, and did not return until another meal was partaken of. The *vomiting* usually occurred from three to seven hours after eating; the matters discharged having often a coffee-ground appearance, and being sometimes as black as ink. Again, on placing the patient upon his back, and inspecting the abdomen, we found that it was distended, and that it had an irregular outline, there being greater fulness on the left than on the right side. Percussion over the prominent part was distinctly dull, and produced decided uneasiness. On manipulation, we found that the dullness depended upon the presence of a large *tumor*, apparently about the size of a child's head, occupying the epigastric and umbilical regions to the left of the middle line. This tumor was somewhat nodulated, and harder at some parts than at others. I need not dwell upon the other two symptoms—namely, the great and increasing *emaciation* and the *lemon tint of the skin.*

These are the symptoms from which we are generally warranted in concluding that the stomach is the seat of malignant disease; but, as we shall see presently, while the tumor was malignant, it was not connected with the stomach, but with the mesentery and jejunum. Such being the diagnosis, and the disease being evidently far advanced, it was apparent that a fatal issue might be expected at an early date. I need not dwell, therefore, upon the treatment, which was palliative, and which consisted of the regulation of the bowels by means of castor oil and warm-water enemata, the application of iced cloths to the abdomen for the relief of pain, and the administration of bismuth and strychnia in effervescence, to give tone to the digestive organs and to relieve vomiting. The diet consisted of milk, and small quantities of brandy in combination with iced soda-water were given occasionally.

This patient died within a few weeks of his admission; and, on post-mortem examination, a large tumor was found in the abdominal cavity. It involved the mesentery of the small intestines and the first part of the jejunum; while the walls of the ileum for a considerable distance were much infiltrated with the same material. The canal of the jejunum was represented by a large excavated cavity, the walls of which were formed by the tumor. The duodenum was for the most part free, except at its lower extremity; while the stomach contained a large quantity of brown fluid, but showed no evidence of disease. The large intestine was adherent to the tumor immediately above the sigmoid flexure. The tumor was smooth on the surface, and presented a slightly irregular outline; it measured six inches from above downwards, and the same distance across. On section it was pale; and on microscopic examination it was found to be principally composed of round cells. It was lympho-sarcoma.

Treatment of Piles and Prolapsus of the Rectum by Injection of Extract of Ergot.

Dr. G. **Wm. Semple**, of Hampton, Va., writes to the *Virginia Medical Monthly*, November, 1874:—

In 1868 I operated with the ecraseur on R. M. B. for piles, from which he had been suffering since 1863. The disease began to return in eighteen months, and increased to such an extent, accompanied by prolapsus of the rectum, that for three years there had been a considerable loss of blood every day, and it had been necessary that he should lie down after each evacuation of his bowels to await the return of the prolapsed rectum, when, on the 8th of April last, I operated on him by the application of nitric acid. This, contrary to my usual experience, produced violent pain and irritation of the neck of the bladder, requiring for three days large and repeated doses of morphia.

After healing of the slough, the piles still continued to bleed and to be painful, but the patient was unwilling to submit to further operative procedure. Having at the time under successful treatment, by ergot, a mammary tumor, and my attention having been called to the relief of varicose veins by the hypodermic injection of ergotin, and remembering that in several cases of imperfect involution of the uterus, in which I had successfully prescribed ergot in combination with sulphates of quinine, iron and strychnia and extract of canabis indicis, in which piles co-existed, they also had been cured, I ordered the injection of ʒss of the fluid extract of ergot, with ℥ss of water, into the rectum after each evacuation. Though the patient has been irregular in pursuing the treatment, he has since seldom had any discharge of blood or suffered any inconvenience, and now considers himself cured.

On the same day (May 1st) this prescription was made, B. H. E., convalescent from typho-malarial fever, who had suffered with piles and prolapsus of the rectum for 15 years, daily losing blood, and being obliged to lie down after every evacuation to await the return of the prolapsed part before resuming his work, called on me for advice. Ordered the same treatment, which he pursued steadily. At the end of six weeks, having had but one discharge of blood, he felt himself well, saying he was a new man.

(*e*) GENITO-URINARY ORGANS.

How to Fasten a Catheter.

Dr. H. **McGuire** writes to the *Virginia Medical Monthly*, October, 1874:—

I have lately resorted to the following method in three cases in which I have had occasion to fasten the catheter in the urethra: The catheter having been introduced, the penis and testicles are carried through a common ring pessary, which should be three or four inches in diameter, or large enough to avoid any pressure upon the penis and scrotum which it surrounds. The pessary should then be secured in its place in the following manner: Carry a single turn of broad tape around the hips and fasten it in front; let the tape pass just below the crest of the ilium on each side. Take another piece of tape about a yard long, and fasten one end of it to the circular band just above the trochanter; carry this piece along the groin to the pessary; lake one or two turns of the tape around the pessary, and then carry the cord under the thigh, and up behind the buttock to the circular tape, to which it is to be tied. The same process is to be repeated on the opposite side. The ring is thus held securely against the pubes. After this, pass two strong threads through each eye of the catheter and tie them to the ring, one on each side—one in front of the penis, and one behind the scrotum.

I have found that the India-rubber catheter is much better than the gum-elastic instrument, if it is to be retained for any length of time in the bladder. I have seen a pure caoutchouc catheter worn for a month without being incrusted with urinary salts, the instrument being clean, smooth and sound when removed.

I had made, for the use of this catheter, a silver tube about an inch in length, slightly tapering to fit accurately the free end of the soft rubber catheter. This tube has four small rings soldered to its extremity—one on each side, like those attached to an ordinary silver catheter, and one in front and one behind. The threads or tapes fastening the catheter to the pessary are tied to these rings.

Urethral Fistula from Mechanical Constriction.

The subjoined case is reported in the Baltimore *Physician and Surgeon,* September, 1874, by Mr. A. W. Howard, medical student, of Highland, Ky.

A boy aged 8 years fell from a fence, and received a severe blow across the abdomen by a falling rail. Complete incontinence of urine followed the injury; and his parents, ignorant of his condition, punished him for supposed carelessness and uncleanliness. In order to prevent wetting the bed the following night, and again incurring the same penalty, he tied a small twine string tightly around his penis, near the pubis. Of course the penis swelled, and on the following morning the string was entirely concealed by the swelling. Severe abdominal pains followed, which was supposed by his parents, who were still ignorant of his true condition, to be colic, and he was given some domestic remedy.

Strange to say, this condition remained for more than one month, when he was examined by a physician, who detected the string and removed it. Three fistulous openings had then formed, from which his urine was constantly dribbling. How long after the application of the string these fistulæ formed could not be ascertained.

On the 1st of April, four months after the removal of the string, Dr. ———, assisted by the writer, operated on him for the purpose of restoring the urethral canal, which was entirely occluded by adhesive inflammation. A complete phymosis was first removed by circumcision; the point of occlusion reached and penetrated; a catheter introduced and left *in situ,* and the fistulæ closed by sutures. At the end of 34 hours, the catheter having become clogged, was removed, when the urine was voided by the natural channel the first time in five months. The incontinence was treated with belladonna internally, and was soon entirely relieved, and the boy now, May 1st, has complete control of his urine, which he voids in a good stream by the urethra, the fistules having been closed in a short time.

The most remarkable point in this case is that complete retention of urine should have suddenly commenced and continued until fistulæ were formed through a previously healthy urethra, without exciting any decided symptoms of uraemic intoxication, or serious injury to the bladder or kidneys.

VI. DISEASES OF THE SKIN.

On Tinea Decalvans.

Dr. Tilbury Fox writes to the *Lancet*, October 10th, 1874, on this topic:—

I limit the term tinea decalvans to that form of circumscribed alopecia which is produced by the attack of a vegetable parasite, the microsporon Audouini. The existence of this form of disease is denied by almost every authority. I am still convinced that there is such a disease. Parasitic sycosis is said not to occur, but I was recently enabled to demonstrate the contrary at a late meeting of the Pathological Society of London. Dr. James White, the Professor of Dermatology in the Harvard University, has put on record two cases of parasitic alopecia (tinea decalvans) in a paper in the third annual report of the State Board of Health of Massachusetts, and recently he wrote to inform me that since the paper was written he has "had another case of the parasitic form." No doubt as the experience of others increases similar cases will be observed. Within the last few months I have met with two or three cases of parasitic alopecia or tinea decalvans, and, as the facts connected with them are of much clinical interest, I venture to put them on record as follows:

First set.—Mr. P——— called on me with three bald places on his scalp, two the size of threepenny-pieces, the other that of a shilling. They had all the appearance of tinea decalvans. Many of the hairs around came away readily when traction was made upon them. This gentleman stated that he noticed the bald places suddenly one morning, and his attention was directed to one by the presence of a little pimple. This pimple I saw; it was a pustulation of one of the hair-follicles, containing a hair loosened from its follicular walls, and coming away with its sheath attached to it. I examined certain of the hairs under the microscope. Certain of them were atrophied and tapered at the point, as is usual in alopecia, and without any attached sheath. In others the hair-bulbs were fairly normal, only perhaps pigmented more than usual, and some were more club-shaped than usual at the extremities, as though the hair had been "squatted" by pressure from above. These latter hairs were surrounded at the part where the hair emerged from the follicle with a good deal of epithelial matter, *débris*, and albuminous matter, but no pus; and it seems to me that the tying or adherence of the hair to the follicle, due to the inflammatory action and epithelial collection, offered a difficulty in the ordinary elongation of the hair or the follicle, and this led to the "squatting" before spoken of. But in addition I detected here and there about the point of the epithelial accumulation minute fungous elements in the form of very delicate wavy mycelial threads.

I attribute the epithelial accumulation in the upper part of the follicle especially to the irritation induced by the parasite. But the chief interest of the case is to be found in the fact that two children of this man were under my care for ordinary ringworm, and the father persisted that he had taken the disease from the children. Now, it is very unusual for a grown-up man to be attacked by tinea decalvans, and the fact that it occurred coincidently, in the present case, with the development of tinea tonsurans in two children of the parent is, to say the least, noteworthy; and when it is remembered that upon one and the same head diseased conditions exactly corresponding to tinea decalvans on the one hand, and tinea tonsurans on the other, may concur, the relation established by the particular case under notice is still more interesting. Again, in my patient the hair-roots were not all atrophied. Some were actually enlarged, and surrounded by a more than usual amount of epithelial accumulation, both of which states, I have explained, probably resulted from the action of some irritant upon the interior of the follicles; so that, after all, the atrophy in my case was not a *primary* condition at all, but actually secondary to a hyperplasia. And I should say that in the particular sequence of events here referred to lies the difference between tinea decalvans, a parasitic disease, and alopecia areata, in which the disease is a pure and simple atrophy, in which atrophy occurs from the outset, and is, in fact, primary.

Second set.—I was sent for to visit a public institution some twenty miles from London to advise measures for the stamping-out of ringworm, which existed in the school as an epidemic. There were at my first visit some four or five and twenty cases of tinea tonsurans, of varying degrees of severity. Amongst a batch of girls I found, at a second visit, no less than five cases in which the disease answered in all particulars to tinea decalvans. There were one or more small circular bald patches, the size of a sixpence or a shilling, on each head. But on one of the heads a patch of tinea decalvans concurred with others of tinea tonsurans. For obvious reasons, I do not divulge the name of the institution, but the medical officer and I were both convinced of the correctness of the diagnosis in these cases. There were the two diseased states side by side on the same head, answering to the accepted descriptions of tinea tonsurans and tinea decalvans respectively. My object is merely to put on record an additional instance of a concomitance which I have described at other times and in other places as indicative of the occurrence of a circumscribed alopecia from the attack of a parasite.

Description of Mycetoma.

This so-called fungous disease of India is described in a work reeently written by Dr. Carter, and reviewed in the *Lancet* of October 24, 1874:—

Dr. Carter makes two varieties of the disease, which he designates *melanoid* and *ochroid* respectively, or pale and dark, the particles discharged in the two forms being called *sclerotia* and *malacrotia,* as expressive of certain differences in consistence and appearance. The general features of these two varieties are the same, viz: general swelling followed by disorganization of the structures of the foot, with the production of numerous sinuses discharging fungus and fish-roe-like particles; and, as Dr. Carter points out, the diagnosis of the particular variety cannot be surely made out until particles begin to be discharged. "The reason of this outward similarity in appearance of the swelling," says Dr. Carter, "notwithstanding differences in the parasatic species, is owing to there being in all cases but one mode of production of the malady, that, namely, which pertains to the development and growth amid the tissues, and to the subsequent approach towards the free surface, of an organism altogether foreign to the body itself. Thus the cause and attendant conditions being alike, it is plain that the effects or results, as shown by local signs, will be essentially the same." Dr. Carter draws the same conclusion from the observed uniformity of character noticed in regard to the clinical history and general features of mycetoma cases as a whole, adding that "this circumstance appears of great weight, not only as indicating a common cause, but as pointing to identity in nature of the foreign growths which are always present in the foot or hand. Thus, since it is shown that in one form (the melanoid) an undoubted fungus is present, so in the other (the ochroid) form a similar or a correlated structure may be looked for; and that such is really to be found is the conclusion which, from the first, my inquiries have led me to uphold." Dr. Carter sustains his position with much success, we confess, but as his only object is truth, he will, we feel sure, be only too glad that we should point out, in the spirit of a friendly critic, where it seems to us his chain of evidence in support of his position is weak, and as yet inconclusive. In doing this we do not for a moment say that he will not finally be proved to be right. It has yet, however, to be conclusively shown that the discharged parasites of the pale variety are really *parasitic*, and if this should turn out not to be the case, the conclusions to be drawn from uniformity of external appearance and general history of the two varieties will be fairly open to another construction than that given them by Dr. Carter. We fully admit that the cause of the two varieties must be the same; but if it can be shown that the disease in all its characters can be produced without there being any evidence of the presence of a fungus, then the cause can scarcely be the growth of the fungus, and it may be opined that where the fungus is present it is accidental. Competent observers have seen typical specimens of the pale variety of mycetoma, without having been able to detect any fungus in them, and Dr. Carter himself will not hold that he has conclusively proved the *parasitic* nature of the roe-like particles found in this variety; whilst such observers as Quekett, Cohn, Hulke, Bristowe, Moxon, Tilbury Fox, Goodhart, Cunningham, and Lewis, have failed to recognize their vegetable nature. Under these circumstances, the value of Dr. Carter's argument, that inasmuch as the general characters of the two varieties are similar, and that since it is shown that in one form an undoubted fungus is found, so in the other a similar structure may be found, is seriously diminished in the face of the strong negative evidence adduced by these observers.

On Lupus Superficialis.

A case of this disease is reported by Dr. Bork, in the St. Louis *Medical and Surgical Journal*, August, 1874:—

It was a case in a lady aged thirty-eight years. The disease made its first appearance eight months before—as a small pimple—and advanced slowly over her face. Treatment consisted in iodo-bromide of calcium comp., one drachm three times daily, until six ounces were taken. No local application was made. The ulcer healed kindly and left the peculiar scar, of a white appearance, so characteristic of lupus. The disease reappeared at the same site, after a few months, and his treatment now consists in elixir calasaya one drachm, and two grains of iodide of potassium three times a day, together with the local application of ung. hydr. oxidi rubri. The ulcer is again healing kindly. Patient is otherwise healthy.

The points of interest connected with the last case are, 1, the age of the patient—thirty-eight years—this disease being seldom met with in patients over twenty-five years of age; 2, the peculiar whitish scar shown upon the left side of the nose, while below the brownish scar is seen in full vigor, with an elevated rim surrounding it; 3, its aptness to be mistaken for impetigo. The slow progress of the case, without constitutional symptoms, the peculiar white scar which it leaves, and which is "indelible," and the fact that there is no real ulceration, will readily distinguish this disease from impetigo; 4, lupus superficialis is so seldom met with in general practice, that some writers on skin diseases have not even mentioned it; 5, it is a tedious disease to treat—lasting sometimes for two or three years; 6, the white scar left in this disease is not met with in any other skin disease.

The Alkaline Solution of Tar in Skin Disease.

Dr. L. D. Bulkley writes to the *Virginia Medical Monthly*, November, 1874:—

During the last year we have made very great use of the "*liquor picis alkalinus*"—a watery alkaline solution of tar—which we first presented to the profession at the New York Dermatological Society in January, 1873. The formula, which has been often published, is as follows:

℞.	Picis liquidæ,	ʒij.
	Potass. causticæ,	ʒj.
	Aquæ,	ʒv.
	M. Ft. "liquor picis alkalinus"—use diluted.	

The diseases and conditions of the skin in which this is of service in some form of dilution, are very varied. Thus, with 20 to 30 parts of water, it may be used in acute eczema for the purpose of bathing the surface, or cloths may be kept wet with the same continuously on the parts. Diluted with 15 or 20 parts of water, it is of service in acne and to relieve the congestion of the face after exposure to the weather; a little stronger, say 1 to 10 or 15 parts, it relieves pruritus very effectually, in many instances forming a pleasant wash for urticaria, or chronic eczema. From this strength upward it must be increased with caution; 1 to 10 will be found of value in erythematous lupus, and in sub-acute eczema, when the surface must be covered afterward by some bland ointment. In more chronic cases of eczema, one part in eight, six, four, or even two parts of water may be rubbed in with some force, a soothing ointment following. We have also employed it in the full strength, but with caution.

In the form of an ointment—a drachm or two to the ounce—it serves an excellent purpose in relieving the itching and scaling of the chronic eczema, especially of the legs, and will be sufficient in many cases of tinea tonsurans or ringworm of the scalp to remove it entirely. This ointment may be strengthened by the addition of a drachm or two of some mercurial or sulphur ointment to the ounce. This alkaline tar may be likewise used in making up other washes to relieve congestion; thus a very favorite one in acne, erythema, and certain cases of congestive eczema, without exudation, is as follows:

℞.	Calamin. preparat.,	ʒij.	
	Zinci oxidi,	ʒj.	
	Glycerin-purif.,	ʒij.	
	Liquor picis alkalin,	ʒj. ad ʒij.	
	Aquæ rosar.,	ad ℥iv.	M.
	Ft. lotio.		

On Herpes.

Surgeon Garden, in the *Indian Medical Gazette*, September, 1874, publishes a paper on the subject of herpes, from which we take the following:—

Examples of zona crossing the median line without being double are by no means uncommon. In six cases of the sixty-eight there was a distinct patch of vesicles on the opposite side of the spine to that affected. In the *Journal of Cutaneous Medicine* a case is mentioned in which the eruption extended across the median line in front. There were two large clusters near the vertebral column, and the third in front crossed the linea alba from one side to the other to the extent of two inches. In another case, under the care of Mr. Bryant, the eruption extended posteriorly for two inches across the median line, and anteriorly for six inches. These cases depend on some abnormality in the distribution of the cutaneous nerves.

Zoster Pectoralis occurred in nearly one-half of the cases. As a rule, the eruption occupies the position of three or four nerves, rarely that of only one. Trousseau says that most often the eruption on the chest is found running perpendicularly to the axis of the body, and not obliquely in the line of the ribs and intercostal nerves. Squire says that this is always the case, and from this draws the inference that the disease is not primarily neurotic. These cases he has seen frequently, but this perpendicular distribution is certainly not the rule. As the actual position of the herpetic clusters depends on the cutaneous nerves, as distributed to the skin, whether posterior, lateral, or anterior, the more probable argument is that these cases depend on the peculiar distribution of these nerves, as do those cases on which a patch is found either crossing the median line or by itself on the opposite side. Barensprung notes that as the line of the eruption approaches the median line in front, it ascends a little, where it occupies the anterior terminal branches of the intercostal nerves. This he has noticed himself on more than one occasion. All the cutaneous branches of the intercostal nerves are not necessarily involved in any one case. The eruption is not unfrequently confined to either the anterior or the posterior branches of the lateral intercostal nerves. Most often they are simultaneously the seat of eruption, but not invariably. Cases also occur in which the anterior cutaneous nerves and the posterior alone are affected, the lateral remaining free. It is in those cases where the cutaneous offsets of the posterior branches of the dorsal nerves are affected that we find patches on the opposite side of the vertebral spine.

Leprosy in the Sandwich Islands.

Dr. WYTHE, in *Pacific Medical and Surgical Journal*, July, 1874, has a paper on leprosy in the Sandwich Islands. He says the tuberculated form is exhibited on the cutaneous and mucous surfaces. A feverish condition of the system is followed by an eruption of dark spots or patches; the serum escapes into the tissues and gives rise to hard and semi-transparent tubercles, with thickening of the skin and deposit of brown pigment. These patches undergo a slow degeneration, leaving white spots and cicatrices without ulceration, or great holes are left in the skin by a sort of dry gangrene.

The extremities do not drop off, as is usually supposed, by a process of ulceration, but the bones are absorbed and the muscles contracted. He saw many cases where the fingers or toes were all gone, while the nails remained intact. The bones of the nose and palate may thus be absorbed, and when to this are added tuberculous swellings on the face, the countenance loses its human expression and assumes that of the brute. The person afflicted in this manner, however, is not conscious of pain. Even to the last, suffering is prevented by the diseased state of the nerves.

Leprosy is still regarded as an incurable disease. Some cases of recovery have been known, but they are rare. Medical treatment in the asylum is directed to concomitant disease rather than the leprosy itself. To this end a supply of medicines was dispensed by a hospital steward—a white man, also a leper—under the general directions of Dr. Trousseau. He made a suggestion to the latter gentleman relative to the employment of glycerin, which seemed to promise well in ameliorating some of the symptoms. From the known action of this agent in histological investigations, it may be a means of preventing the drying up of the tissues, which is so characteristic in leprosy. To this end it should be used by inunction, and internally when dissolved in large quantities of water, so that it may enter the circulation by endosmose. In the latter form it might also be combined with arsenic or other well-known remedies.

VIII. SYPHILIS AND GONORRHŒA.

The Unity of the Syphilitic Virus.

In a paper published in the Missouri *Clinical Record*, September, 1874, Dr. R. B. Hulett writes:

Numerous instances present themselves discarding the old theory of constitutional safety from chancroid. The identity of the virus originating the two sores, is to my mind an established fact. Not that the two sores are in themselves alike in every particular. If the virus from the same nursery be transplanted a sufficient number of times, into various systems, we may get all the different varieties; a hunterian, a soft, a phagedenic, and a serpiginous ulcer. Habit, constitution, and the peculiarities of temperament determine its nature. The behavior of the sore itself in a great measure, determines whether it will be of the infecting or non-infecting variety. It is no peculiar difference in the kind of syphilic virus that determines its infectiousness. The portal through which it gains access to the blood current, being once entered, once beyond the sentinels which guard the entrance, and constitutional infection is certain.

To gain the circulation the virus must be brought in contact with the cellular tissue, with lymphatic glands, or their ganglia. No other tissue is capable of absorbing it. Not only must it come in contact with an absorbing surface, but that the virus itself must be in a condition favorable to that end, is a fact well illustrated in injuries and surgical operations; were the matters effused capable of being absorbed they would be, and blood poisoning result. This sometimes happens in the one case as in the other, and this for the patient is a most serious accident.

It is generally taught that the period of incubation is from three to seven weeks. This is a fallacy; nevertheless, the danger decreases after the tenth day in proportion to the length of time. If a solution of continuity occur during the act of coition the danger increases and the time of its appearance is lessened.

I have certainly seen more chancres from the 3d to the 5th day after exposure, than I have ever seen after that time. I can see no reason why a virus placed upon a denuded surface, provided it be in a condition favorable for absorption, would not be absorbed as certainly as a saturable salt placed upon a blistered one, or injected subcutaneously. It is hard to understand how a virus can lie upon the integument for seven weeks without producing its effects. In those who are content to live and stink from the exhalation of their own bodies from accumulated filth, a diseased skin may blunt the sense of feeling and render one unconscious of a chancre for weeks after its appearance.

Is Syphilitic Semen Infectious?

To aid in solving this query Dr. Isaac Smith, Jr., of Fall River, Mass., sends this case to the New York *Medical Journal*, November, 1874:—

In February, 1872, a gentleman called upon me for advice about a sore "he had upon his penis." Upon examination, I found behind the glans penis a circular excavation, with indurated and raised circumference three-fourths of an inch in diameter; said he had had it six weeks; had been under the care of a doctor who said it was only a "chafe." I placed him under mixed treatment and mild citrine-ointment locally, and the chancre healed in about two weeks, leaving a cicatrix

In a few days he called and said that he was "breaking out," and examination revealed the secondary eruption, which in a short time completely covered every part of the body. Treatment was not changed. Salt-water bathing was advised, and in a short time his skin was as fair as before infection. Next, engorgement of the glands both sides of the neck ensued, which was successfully treated by hypodermic injections of iodine, in conjunction with original medicine; one of the glands suppurated, but healed kindly after aspiration and subsequent injection of iodine, almost without cicatrix. The inguinal glands were prominent, but did not require specific treatment. A year passed on, and, disregarding my advice, he was married. I unfortunately assured him, however, that his wife would suffer no detriment *unless she became enceinte.*

In August, 1873, his wife had a prolapsus uteri, and he discovered a sore upon the os, which he attributed to friction. I treated the chancre (for such it was), and put her under mixed treatment, i. e. (iod. potass. et hydr. chl. corrosivi, etc.). This chancre healed in about the usual time, and the uterus, having been elevated to its natural position, was retained there by pessary. Six weeks later I was called to attend her for "rheumatic fever," as her husband called it. She was apparently in the incipient stage of that disease. The temperature was very high, and articular swelling was present at the larger and smaller joints. The urine was intensely acid. I thought proper to put her under the influence of alkaline treatment, omitting other remedies, which was continued until the urine was loaded with ammonio-magnesian phosphates, and alkaline in reaction, during which time perspiration was profuse, and as that subsided the secondary eruption appeared. The mixed treatment was now resumed, and the case progressed favorably; the mucous membrane of the nose was slightly affected, but healed under the stimulus of dilute citrine-ointment.

January, 1874.—The gentleman called to tell me he had caught disease from his wife. I found he had a urethral chancre, which I treated; as yet there are no secondary symptoms. I was called to his wife also two weeks later, and found her suffering fearfully from engorgement of the os uteri, with uterine leucorrhœa, which was treated through the active stage with opiated emollient injections. The active symptoms subsiding, the discharge increased, and I used intra-uterine injections of dilute citrine-ointment, which rapidly caused a cure. Since then she has been free from dysmenorrhœa, which she had suffered from since her first menstruation, at times having to remain in bed a week on account of its severity. She has had three painless menstruations since, and is apparently in perfect health.

She has *never been pregnant;* has never run past her time. The family is socially and pecuniarily of the highest respectability.

Ulcerating Syphiloderms.

The subjoined case is reported in the *Medical Times,* October 31, 1874, from a clinic by Dr. L. A. Duhring:—

The case before us is a rare one: you would scarcely find its like anywhere outside of the hospitals of our large cities, and even in these such severe forms of disease are not common. It is an example of the affection usually called syphilitic rupia, a designation which I do not consider quite justifiable, so we will drop this term for the present, and speak of it as simply an ulcerating syphiloderm.

The patient comes before us to-day for the first time, and the only history which we can obtain is that the eruption has existed two or three weeks. Examination shows it to consist of open ulcers and of piled-up crusts of various sizes, from that of a split pea up to half a dollar. These crusts and ulcers are scattered over the head, forehead, face, neck, shoulders, arms, and upper part of the trunk; the abdomen, loins, and hips are free, as well as the lower limbs, if we except a large ulcer and crust on the left thigh.

Looking more closely, we observe the reason why there are ulcers in some places and crusts in others: it is simply that in the former case certain ointments have been applied which have macerated the crust and caused it to come away, leaving the ulcer beneath. Bear in mind that the ulcer is the disease, the crust but the product; do not neglect the essential feature.

If we remove any one of these crusts, as I am doing now, an operation which can easily be performed and causes no pain, we see beneath an ulcer, variable in appearance and size. This one you see is quite shallow and granulating, while the other is deep, and its surface is covered with a layer of broken-down products of suppuration. It is proper to mention just here that great care should be taken in handling these ulcers, whose secretion is virulently contagious, and if it were splashed into the face might be productive of serious consequences.

The treatment of a case like this is twofold—hygienic and therapeutic. This woman requires the very best and most nourishing food—beef-tea, milk, meat-soups, and the like—as well as fresh air, and, so far as is possible, moderate exercise: one of the bitters, combined, perhaps, with iron in one form or another, and especially in connection with the iodide of potassium, in doses of from five to ten grains thrice daily.

The Treatment of Venereal Buboes.

The following treatment is recommended by Dr. H. E. Woodbury in the Philadelphia *Medical Times*, October 10, 1874:—

In 1864 I was connected with Armory Square General Hospital, Washington, D. C. A soldier came to me with a large bubo, and informed me that some of the medical officers had been for weeks treating it, but that it was larger, harder, and more painful than before. I directed him to apply hot flaxseed-meal poultices, changing them frequently. This he did faithfully, and on the evening of the second day I operated as follows:

A sharp-pointed bistoury was passed through the tumor longitudinally; that is to say, the knife was entered at a point of the gland nearest to the ilium, and carried entirely through it in the direction of the pubis. When the knife was withdrawn, from the two small openings issued a little blood mixed with pus. With a small rubber syringe, I then injected a drachm or two of tincture of iodine, diluted (one part to four of water). This, being forced into one of the openings, flowed out freely from the other. Rest for a few days was enjoined, and the only dressing used was lint, saturated with a weak solution of potass. permanganat., a roller being applied as a compress over the lint, and as much pressure being made by means of a bandage as the patient could comfortably bear. There was but little suppuration, and no sloughing. In a short time it was evident that adhesion of the integument to the deeper tissues had taken place, and a cure was soon effected. Iodide of potassium was given (in ten-grain doses) during the treatment. The only traces of the bubo that remained were a slight induration of the part, and two small cicatrices at the points of entrance and exit of the knife.

The unsightly scar that follows the old method of treatment—free incision—and the slow process of repair attendant thereon, render the method herein proposed more acceptable to the patient and more satisfactory to the surgeon. I never make free incisions in these cases.

In some cases that have occurred in my practice I have succeeded in avoiding the use of the knife, as follows:

The patient is confined to his bed; a half-brick, covered with flannel—a single thickness—is laid upon the bubo. A lump of ice is kept upon the brick, and as it melts the flannel is saturated with ice-water. I have seen a large bubo disappear in twenty-four hours under this treatment by cold and pressure; a combination of iodine and iodide of potassium in syr. sarsap. being administered internally. If this course be resorted to at the proper time, we believe that the necessity for surgical interference would often be avoided. Of one fact we are fully convinced by experience—if the knife be used, the smaller the incision, the better and more rapid the cure.

Infantile Syphilis.

From an interesting clinical lecture on this subject, delivered by Prof. THIRY at the St. Pierre Hospital, Brussels, translated in the *Medical Times and Gazette*, London, August 29, 1874, we make some extracts:—

Hereditary syphilis may occur in different manners. It may be produced at the period of fertilization of the germ, when both parents, or only one of them, may be syphilitic. When the husband alone is syphilitic, the fœtus is syphilitic before its mother, she only becoming so consecutively. The blood, while nourishing the infant, becomes impregnated with the syphilitic poison, and is thus transmitted little by little to the mother. If this be not borne in mind, difficulty may arise in explaining maternal syphilis, the portal by which this has gained admission not being discoverable. A woman in perfect health at the time and after conception, who has never presented the slightest initial acquired symptom, may become syphilitic solely from her infant procreated by a syphilitic father. Still, the participation of the father is less general than that of the mother, and syphilitic men have been known to impregnate women who have given birth to healthy children. It is, however, proper to observe that this especially occurs in cases of old syphilis. If the mother be syphilitic at the time of conception, the product will certainly be syphilitic, and that from the earliest period of its organization; for syphilis consisting in an alteration of the blood which serves for the development of the fœtus, this necessarily engenders the disease.

The conditions as regards the infant are very different, according to the epoch at which the syphilis is produced. Created syphilitic, through the agency of the father or the mother, the fœtus will never reach its full time, abortion surely taking place, unless, indeed, energetic medical intervention be employed. If the mother be infected she will then be cured at the same time as the infant, and if she is not syphilitic, the infant may be cured without infecting the mother, the diagnosis in this latter case being often difficult, unless we are acquainted with the condition or antecedents of the father. If the cure is accomplished, the pregnancy may pursue its regular course and the child may be born at full time in excellent health. But it may happen that at the period of impregnation both father and mother may have been in perfect health, and only at an advanced period of pregnancy the mother has become the subject of chancrous contamination terminating in syphilitic induration. Although the syphilis is here manifested later, the infant may none the less suffer from its effects. It is to be observed that in the advanced period of gestation, the intervention of the father is no longer direct. Suppose that the infection of the mother takes place in the fifth month of pregnancy, the infant will certainly become affected; but as abortion is at this period exceptional, the infant being able to offer more energetic resistance to the syphilitic poison, the child may be born at full time, then presenting, however, all the characteristics of congenital syphilis. It may be still saved by submitting its mother to mercurial treatment, but this is far from being a general rule. If the syphilitic infection take place six weeks before delivery, the child may be born, having in it the germ of the disease, with all the signs of vigor and good health; but in a few weeks or a month or two, strong as it appeared at birth, it will fade away and become syphilitic. The mother must be carefully examined for evidence of the terrible diathesis which she has passed on to her child, and the latter may often be cured by submitting her to mercurial treatment.

Infantile syphilis may also be produced in another way. The pregnancy may have been quite regular; but the mother at the time of delivery may have had a chancre in a state of progress at the vulva, vagina, or cervix, and the infant while traversing the passages becoming contaminated, a chancre afterwards appearing at the anus, the mouth, or some part of the body which was excoriated during labor. The chancres both in mother and child terminate in initial induration, and syphilis is the consequence. It may happen in this case that the infant alone has syphilis, the chancres of the mother healing by simple cicatrization.

Infantile syphilis may also be the consequence of suckling, and the greatest care and circumspection are required on this account in the choice of a wet-nurse. When, from neglect of precautions, a healthy infant has thus become contaminated and syphilitic, we should be careful not to dismiss the nurse if she have a sufficient supply of milk, for she may be made the instrument of curing the child she has infected, by being subjected to a rigorous mercurial treatment, becoming cured herself at the same time. If this course be pursued with conviction, the infant will be restored to health.

Finally, syphilis of new-born infants may proceed from a source that is not readily discoverable. This mode of propagation may be termed "indirect." The parents are healthy, the nurse, when there is one, is quite well, and the infant, when born, exhibits no trace of hereditary disease. Nevertheless, without any appreciable cause, there appear one or several ulcers of a bad aspect, generally at the labial commissure, the margin of the anus, or the navel, and sometimes at the velum or in the throat. They cicatrize, and all seems over; but in the course of a few days the infant's countenance becomes faded, it no longer takes the breast as before, cries often, and rapidly wastes away. The voice is altered, the nasal mucous membrane secretes abundantly and ulcerates, a papular eruption appears, and the palms of the hands and soles of the feet are covered with parchment-like scales. The whole physiognomy takes on a strange aspect, and, in a word, the child exhibits all the symptoms of syphilis. In such cases, if diligent search be made at the spots where the ulcers appeared, the characteristic induration, termed by Prof. Thiry "syphilioma," will be found. In answer to the question whence came these ulcers and consecutive indurations, he observes that it is not always discoverable, and the source is frequently conjectural. Sometimes the kiss of a stranger, the contact with soiled and infected objects, the use of an infected spoon or glass, etc., have been adduced in explanation. M. Thiry mentions a case which fell under his own notice, in which a new-born infant became infected through a woman having a chancre on the lower lip kissing it on the buttocks. A child infected under these and similar circumstance becomes easily the means of propagating the disease, inasmuch as its own parents have no suspicion of its unfortunate condition.

Professor Thiry is a strong advocate for the mercurial treatment of syphilis, in which he alone has any faith, employing in these cases small doses of corrosive sublimate and mercurial frictions for the mother. While the infant is undergoing treatment by means of milk thus mercurialized, he also prescribes for itself 100 grammes of emulsion of bitter almonds to which the yolk of an egg and two millegrammes of corrosive sublimate have been added. Of this three teaspoonfuls are given daily, while sublimate baths are also employed. As to iodide of potassium, in his opinion it possesses no power whatever over syphilis, although, when mercury has been excessively employed, it may be usefully employed in combating some of the effects thus produced. Frequently the symptoms which it is administered for in the tertiary stage of syphilis have nothing whatever to do with syphilis. As a means of combating true syphilis it is absolutely useless.

On Hepatic Syphilis in the Adult.

A review of M. Lacombe's opinion on this subject appears in the London *Medical Record*, October 21, 1874:—

The question is almost new, since really scientific researches on syphilis only date from about twenty-five years since. Dittrich's first memoir only appeared in 1849, and subsequent researches but serve to consolidate and complete the work of the physician of Prague. A considerable number of medical men, however, in France and other countries, have added their stone to the general edifice. Gubler in 1852, Quetelet in 1856, Lecontour and Virchow in 1858, Leudet in 1860, Lancereaux, Cornil and Ranvier, have brought to light all the variety and capriciousness belonging to the clinical and anatomo-pathological manifestations of this disease. In the anatomical portion of his work, M. Lacombe recognizes and describes two principal forms in lesions of the liver, interstitial hepatitis, and gummatous hepatitis, of which he gives the histological description in detail, from the works of MM. Lancereaux, Cornil, Ranvier, and Hayem, afterwards going into an interesting discussion on the unity or duality of the sympathetic lesions of the liver. We know, in fact, that the generality of writers consider interstitial hepatitis and gummatous hepatitis to be of totally different orders; the first they hold to be of a purely inflammatory nature, whilst the second alone is markedly a specific disease. M. Lacombe is of a different opinion, and believes that the anatomical nature of the lesions is identical, all the difference between them arising from the fact that they do not attain to the same degree of evolution. The question is, at what stage of syphilis hepatic lesions appear? It is difficult to solve this question in a general way, for syphilis of the liver is often latent, sometimes is only found out on necropsy, and may last a long time without betraying its existence; whence the difficulty. It does not appear possible to say whether, as some writers think, the diffuse lesions are always primary, and the circumscribed lesions, the gummata, are always consecutive.

In a second and clinical portion of his work, M. Lacombe traces the symptomological history of hepatic syphilis, and includes a number of unreported cases collected by him in the hospitals, or given to him by his colleagues, MM. Rendu, Troisieur, Homolle, Raymond, etc. A certain number of these cases gain special value from microscopic examination, generally made by M. Hayem, who even describes a lesion not pointed out before he did so, and which he calls perilymphangitis; the meaning of this term being that the lymphatics have increased in number, and that many of them are dilated and surrounded, as it were, with a ring of connective tissue. The concluding chapters of this valuable monograph relate to the icterus of secondary eruptions. They inquire into the nature of that icterus to which M. Gubler specially drew the attention of the profession in 1853; whether they depend on syphilis, and by what mechanism they are produced. The influence of syphilis on the development of icterus is scarcely to be contested at the present day, for observation has sufficiently proved that that icterus is etiologically connected with syphilitic manifestations. The author passes in review all the opinions hitherto enumerated concerning the mechanism by which it is produced, and takes his stand on that which pronounces that the icterus which is coincident with premature syphilitic eruptions is a simple catarrhal icterus, only differing by its cause from the more ordinary catarrhal icterus.

Variola and Secondary Syphilis.

Dr. P. J. **Farnsworth**, M. D., Professor of Materia Medica, Medical Department, University of Iowa, Clinton, Iowa, writes to the Cincinnati *Medical News*, December, 1874:

In the spring of 1863, a gentleman consulted me on account of secondary syphilis, manifesting itself in the form of a copper-colored eruption on the skin, and loss of hair, together with an ulceration of the throat, general pains in the bones, etc. He had contracted a chancre sometime in the winter, which had received treatment, but not effectual enough to prevent the disease from becoming constitutional. I placed him on appropriate treatment which partially relieved him, but the complaint seemed very obstinate. In about a month I was called to see him for what we thought to be a return of the disease. He had a fever with aggravated pains in his bones and in his head, an increase of difficulty with his throat, and a reappearance of the copper-colored eruption.

I made a careful examination of the symptoms, and discovered evidences of variola, which was at that time prevailing. The pains were not quite characteristic, but between the syphilitic patches, were pustules making their appearance. As he expressed it, he had the small-pox and big pox at the same time, and was apprehensive as to the result. We made suitable arrangements for him, and gave him simple treatment, and watched with interest the progress of the diseases. The fever subsided as the variola came out, the soreness of the throat grew better, and the copper-colored spots vanished. The disease was of mild form, and when it passed off, every trace of syphilis or syphilitic disease had disaapeared.

I saw my old patient not long ago; he had married, had two fine healthy children, and had had no symptoms of the old disorder. The small-pox had completely mastered and driven away its bigger brother, never to return.

I would like to inquire of those who have had more experience with these diseases, if this is a usual result, or was it merely a coincidence.

On Gonorrhœal Orchitis.

In the Atlanta *Medical and Surgical Journal*, December, 1874, are the following remarks by Dr. W. F. **Westmoreland**:—

I propose to report two cases of the same disease, in which the same remedy was used—in one with the most marked and prompt relief of all the symptoms, while in the other the remedy, applied in the same way, greatly aggravated the suffering of the patient and added greatly to the intensity of the disease. Both patients were suffering with gonorrhœal orchitis, and the remedy used was collodion, and applied in both cases as suggested by the surgeon of *Val de Grace*, the great military hospital of Paris. In 1853 this surgeon, whose name has escaped me, published to the world that he could cure any recent case of gonorrhœal orchitis in a few days. For a time it was the popular remedy in the city, but soon fell into disrepute, and for a time was almost abandoned by the profession.

I propose to illustrate, by the two cases above alluded to, why it is that, in some cases, we have the most marked benefit, with the prompt and permanent arrest of the inflammation, and in other cases all the symptoms greatly aggravated. The first case of the two was a gentleman of middle age, good constitution; the gonorrhœa having existed for several weeks; the orchitis dating only a few days, and evidently on the increase—I mean that the swelling was rapidly increasing. The collodion was applied with a camel's-hair brush, and thoroughly applied, covering the entire scrotum upon the side of the inflamed testicle, and extending half or two-thirds over the scrotum covering the sound testicle. The application was made late in the evening, and my patient was impressed with the importance of remaining quiet until I saw him the next day. He informed me that, in an hour after the application, or before the burning sensation, which is always the result, ceased, that the pain in the testicle and whole scrotum became intense, and increased in intensity until it could no longer be borne. He attempted to remove the collodion covering, but found it almost impossible, as the precaution of removing the hair from the scrotum, before the application, was omitted. He at last, by clipping each hair with a pair of scissors, finally succeeded in removing the collodion, with great relief to his intense suffering. Upon my next visit, he told me, in the most excited manner, that nothing could induce him to pass through another such ordeal—that it was the most intense suffering of his life.

Sôme months later, I was called to see another case, similar in character. The gonorrhœa and orchitis had existed about the same length of time. In this case, I applied a half dozen leeches the day I saw him, and next day a half dozen more, and then applied the coating of collodion with the most marked and permanent relief—the patient being able, in a few days, to attend to his ordinary duties, when, without the application, he would not have been able to attend to business in three times the length of time.

Why the different results in the two cases? To solve this, it is important to first determine the action of the collodion in orchitis. At first it was supposed that the relief was the result of the direct action of the remedy on the inflamed organ. While in some cases there may result some beneficial influence in this way, yet there is no doubt in my mind that the only influence of any value is the uniform compression of the inflamed organ, and its suspension, which is much more perfect if the entire scrotum is covered than can possibly be had with a suspensory bandage.

In my first case, the collodion was applied, or the compression was made, while the inflammation was progressing and the testicle rapidly increasing in size—the collodion compressing the inflamed organ. In the second case, the acute inflammation was arrested before the compression, by means of the collodion, was made.

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HALF-YEARLY COMPENDIUM

OF

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A SYNOPSIS

OF

THE AMERICAN AND FOREIGN LITERATURE OF MEDICINE,
SURGERY, AND THE COLLATERAL SCIENCES,
FOR SIX MONTHS.

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PREFACE.

THE present number of THE HALF-YEARLY COMPENDIUM will be found to present a careful summary of the progress of both practical and theoretical medicine during the past six months. A comprehensive survey of both European and American periodicals has been attempted, and it is believed that nothing of material importance has been overlooked. The COMPENDIUM continues to be the only semi-annual epitome which does justice to American scientific workers, and the encouraging support it receives proves that this feature is appreciated by the American profession.

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American Journal of the Medical Sciences.
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American Practitioner.
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Archiv für Gynækol.
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Archives de Médecine Navale.
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ANATOMY, PHYSIOLOGY AND PATHOLOGY.

1. ANATOMY.

The Varieties of Marrow.

In a recent article on the formation of bone, Professor VIRCHOW touches on the variety of medullary substance. He says, as translated in the London *Medical Record*, January 20, 1875:—

Of the three kinds of medulla, that which has been longest recognized is the yellow or fatty marrow. It is this of which pomades are made; it is this which Clopton Havers made the special object of his researches, the lobules of which he regarded as glands; it is this which is found in all tubular bones in the adult. It can with the greatest ease, according to modern histological knowledge, be ranged by the side of adipose tissue. It differs from the fatty tissue of the panniculus adiposus in nothing but in being of less firm consistence, and is more readily broken up. Considered histologically, it is just the same thing as the panniculus adiposus. This yellow or fatty marrow becomes changed under manifold conditions into gelatiniform marrow, a substance which, when present in a certain state of completeness, is represented by only one structure in the human body—the vitreous body. The earlier idea of this was, that it was only a fluid (*humor*) secreted by the hyaloid membrane. For us, it is a solid tissue, and it most nearly approximates to the gelatiniform medulla. I have classed the tissue of the vitreous body with mucous tissue, because mucin is found in the inter-cellular substance. I must, however, remark that, in spite of the great similarity, this classification does not altogether hold good for yellow medulla, in so far as this manifests itself as a diverging variety, in which the mucus falls into the background, and the foreground is occupied by alluminates, the nature of which is not yet sufficiently known, but which resemble paralbumin.

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When ordinary yellow medulla becomes changed into this gelatiniform marrow, the following is what takes place: While, in the yellow medulla, the fat-cells lie closely pressed together, so that on making a section we can scarcely see a pair of vessels ramifying between them, we find that in the gelatiniform tissue the cells become small, and that there are spaces between them. The cells lie further apart; the fat no longer fills them completely. Usually single drops only are found in them, in many cases nothing more. The simple cellular form of the fat-cells is also in some degree altered. On the other hand, there becomes collected in the intercellular spaces a quite soft substance, like the vitreous humor, which is in fact the principal constituent of the gelatiniform medulla. The difference from fatty tissue is thus indeed great. While in the latter the large cells constitute nearly the whole of the tissue, in the gelatiniform tissue the intercellular substance assumes large dimensions. Herewith the mass assumes a soft, compressible, diffluent character; a character which our veterinarians have quite rightly designated by the name of medullary fluidity (*Markflüssigkeit*). As the opportunity of seeing this kind of marrow is not very frequent, I have brought with me a fresh bone which shows this condition very well. It is a longitudinal section of a femur: the whole mass of the marrow trembles like jelly. In this marrow the vessels are preserved, many of which can be seen with the naked eye; and (a fact to which I will call special attention with reference to this case) in consequence of the extraordinary softness of the tissue, hemorrhagic effusions very readily take place into its substance, whereby greater or smaller parts of the mass become permeated with blood, so that, as you see here, in the upper section of the thigh-bone, a dark red appearance is produced, which, however, does not indicate the condition which is called red medulla. It is not everything which appears red that is red marrow, in the sense in which I use the term. It is the gelatiniform marrow which almost always accompanies osteomalacia; and even in this case we should perhaps be justified in speaking of osteomalacia, in so far as, within the gelatiniform region, microscopic examination shows a direct melting down of the trabeculæ of the bone into fibrous shreds. The individual from whom the bone was taken was in a strongly marked state of syphilitic cachexia, and the local process in the marrow is an atrophic manifestation which we may class along with the so-called yellow osteomalacia.

Different from both these kinds of marrow is the red marrow, which, physiologically, we meet with as the commencement of the formation of medulla, which occurs in its greatest extent in children in the bones, even in the long bones; but which in adults is found in those bones which consist chiefly of spongy substance, and have no special medullary cavity, such as the bones of the vertebræ, the bones of the base of the skull, the ribs and sternum, and a great part of the pelvic bones. These bones, throughout the whole of life, show conditions of marrow which never pass into complete yellow medulla. The distinguishing characteristic of this third variety is, that the cellular structure predominates. In this respect it resembles yellow medulla in so far as very little intercellular substance is present; but the cells, which are mostly round, lie very close, and between them ramify numerous vessels of wide calibre, giving the tissue its red appearance. To a certain extent this may be called young marrow; but as it is persistent in many parts, the appellation is not altogether applicable. In any case its position with regard to the two other kinds of medulla may be thus defined: that it passes into yellow medulla by enlargement of its cells and by assumption of fat, and into gelatiniform marrow by the extension of the intercellular substance, which widens the spaces between the cells. A relatively much greater amount of yellow or gelatiniform marrow may arise from a mass of red marrow; and on the other hand, the transformation of yellow or gelatiniform medulla into red is not possible without a numerical increase of the cellular elements. This takes place in general by a process which is connected with the multiplication of existing cells, and is called into activity by irritation.

The Collateral Digital Nerves.

The following abstract of a paper by M. Richelot, before the Société Anatomique of Paris, is given in the Chicago *Journal of Mental and Nervous Diseases*, April, 1875:

This memoir has for its object, the demonstration that the radial and cubital or ulnar nerves, only furnished collateral dorsal branches to the thumb and little finger, and that stopping at the base of the three middle fingers, they terminate in the skin of their first phalanges; while the collateral dorsals of these three fingers come exclusively from the palmar collaterals: that is to say, from the median nerve as far as to the external border of the ring finger; and from the palmar branch of the cubital to the internal border of that finger. This memoir, therefore, refutes the classic opinion, given in all the works on anatomy, according to which the radial and cubital distribute themselves to the dorsal surface of all the fingers. It limits more exactly than has previously been done, the spheres of distribution of the three nerves of the hand, and so permits a more accurate diagnosis of certain nerve lesions; while at the same time, it explains certain apparently abnormal appearances described in the observations that have been made up to the present time. Undoubtedly, we shall still find many apparent anomalies in the distribution of the anæsthesia following nervous lesions; on the one hand, because of the difficulty we experience in knowing with certainty the state of the sensibility in certain cases and in certain patients; and on the other, because of the vicarious or recurrent sensibility, the effects of which may be variable as to locality and intensity. It is none the less true, however, that M. Richelot's memoir establishes a more exact relation between anatomical and clinical facts, than has hitherto been known.

The Histology of the Laryngeal Mucous Membrane.

The *Lancet* of January 9, 1875, says:—

Since the observations of KLEIN and BURDON-SANDERSON on the relations between the occurrence of tubercle and the existence of adenoid tissue in various organs in the normal condition, the discovery of the latter in healthy organs has assumed increased importance. It has been known for some time that growths of adenoid tissue exist in the mucous membrane of the larynx of some animals in the form of closed follicles, but until lately it was believed that it did not occur in the same situation in man. Thus Luschka states that the human laryngeal mucous membrane does not show normal adenoid tissue with a reticulum, but only exceptionally does one find a growth much resembling it in the solitary follicles on the edge of the ary-epiglottic folds, and of the epiglottis itself, occurring either as a diffuse infiltration, or in the form of projecting nodules. Verson also says that the mucous folds over the false vocal cords may be thickly studded with lymph-corpuscles. Dr. Heitler has recently studied this subject with the object of ascertaining whether adenoid tissue exists in the healthy human larynx, and has published the results of his researches in *Stricker's Medizinische Jahrbucher*, vols. iii. and iv., 1874. He carefully rejected all cases in which there was any suspicion of catarrh, and in all the healthy cases examined, he found the adenoid tissue to be of constant occurrence. The situations in which he found it most abundant were the ary-epiglottic folds, particularly where the squamous epithelium passes into columnar; but it was also found constantly in the mucous membrane covering the arytenoid cartilages, especially their upper part, and over the cartilages of Santorini, diminishing lower down, and also towards the junction of the two halves of the thyroid cartilage. He also found it in the mucous membrane covering the first part of the ventricle of Morgagni, and in the folds around the sacculus laryngis. Heitler mentions also that he has constantly observed in the healthy larynx a diffuse infiltration of the submucous tissue with small elements of cellular character, which were first observed by Luschka, and which Rheiner regards as the sign of a catarrhal condition. This infiltration varies greatly in its amount and situation. Heitler considers that the characteristic peculiarities of the laryngeal mucous membrane are the existence of this small-celled infiltration, and of masses of adenoid tissue, and also the great number of large glands; and he believes that these peculiarities account for the frequent occurrence of ulcerations, which are usually of secondary character.

II. PHYSIOLOGY.

Motor Functions of the Convolutions of the Brain.

At a meeting of the New York Neurological Society, reported in the New York *Medical Record*, January 16, 1875:—

Dr. John C. Dalton presented the Report of the Special Committee upon "Experimental Researches on the Motorial Functions of the Cerebral Convolutions." The experiments on which the report were based was performed on five dogs, weighing each from five to eleven kilogrammes, anæsthesia being more or less complete. A portion of the cranium and dura mater was removed on one or both sides over the hemispheres, and the exposed surface stimulated at different points by a galvanic current generated by from eight to sixteen zinc-carbon elements, immersed in a solution of bichromate of potassium and dilute sulphuric acid, the electrodes being usually applied one millimeter apart. This strength of current, barely perceptible on the cheek and not painful on the tongue, was thought to give more precise results than those by a more powerful current. The electrodes were applied for about one second. Twice they were applied alternately to the dura mater and to the surface of the brain, and difference in effects noted. After a particular spot had been found where the application of the electrodes caused a distinct muscular contraction, it was repeated until a slight brownish discoloration appeared, and then its site was fixed by the insertion of a pin. The animal was then killed and the brain kept in spirit.

Details of numerous experiments were given and the brains exhibited, with the pins *in situ*. The observations of the committee confirmed the most important of the results of Hitzig's experiments and those who followed him. There is no doubt that these certain limited areas on the surface of the cerebral convolutions where galvanic excitation will cause distinct momentary contraction of separate muscles or groups of muscles on the opposite side of the body, whilst similar excitation of other points not more than 5 mm. distant will be without effect. There appears to be correspondence of function in similar points of both hemispheres, though this cannot be positively stated, the two sides of the dog's brain never being wholly symmetrical, as regards fissures and convolutions. An apparent exception exists in a special point, which, when excited, was followed by flexion of the head and neck; both sets of muscles, either right or left, either acting together, or else each one showing the power to flex the head without causing lateral deviation. "All the centres of motion for the anterior and posterior limbs are situated in the convolution immediately surrounding the frontal fissure, so well marked in the dog, and running outwards from the medium fissure, and situated about the junction of the anterior and middle thirds of the brain, as seen from above. The centres for extension and flexion of the anterior and posterior limbs were always found in the external part of the pre-frontal convolution, just anterior to this fissure, and in the post-frontal convolution just behind it. In most instances those for the fore-limbs were more in front, near the outer extremity of the frontal fissure, and those for the hind limbs more posteriorly and inward, but the exact site varied a little in different experiments. The centre for flexion of the head and neck in the median line is in the lateral and anterior part of the pre-frontal convolution, where it bends downward and outward. That for flexion, with rotation toward the side of the stimulus, is in a part of the convolution situated still further toward the front and downward, invisible in a view of the brain from above. The centre for the facial muscles is in the lateral part of the hemisphere immediately about the supra-sylvian fissure. These results correspond nearly exactly with those of Hitzig.

The committee was not able to indicate precisely the motor points for flexion and extension of the fore and hind limbs respectively, for in some cases their position varied more or less in the different animals, and in some a single application of the electrodes would produce movements in more than one set of muscles.

The committee are led to the conclusion, that centres of motion in the cerebral convolutions exist, and that when the galvanic stimulus is applied only and exactly to the centres, movements will follow peculiar to themselves.

The Magnetic Force of Blood.

A paper was read at the Royal Society of London on December 10th, 1874, by Dr. **Shettle**, on the paramagnetic condition of arterial blood as distinguished from the diamagnetic condition of venous blood. The following is an outline of the author's views: This paramagnetic force is due to the presence of oxygen, under the influence of which gas, all the phenomena of animal life are performed. It had been previously ascertained that the corpuscles of the blood, are paramagnetic in both the arterial and venous states; but these experiments by Dr. Shettle prove that paramagnetic force exists in arterial blood, which becomes converted into diamagnetic force when the blood passes into unstimulating venous blood. It is true, that the paramagnetic force thus displayed is small in amount when compared with iron or other paramagnetic bodies of a similar nature, but it is in proportion to the amount of oxygen which the arterial blood contains, for it is a physical property of oxygen. The author of the paper affirms that in proving arterial blood to possess this force, he proves also, that the stimulating force of arterial blood is due to magnetism, for each atom or molecule of oxygen that is carried into the system by means of the blood, must exercise a paramagnetic—that is, polar influence—over the growing tissues, all of which are known to be diamagnetic to oxygen. In a paper by Dr. Shettle, published in the *Medico-Chirurgical Review* for January, 1871, he indicated the mode in which the heart's action would be stimulated if the blood were paramagnetic, and referred the formation of the ganglia of Beale to the action of the same force. In his present paper he proves the existence of that paramagnetic force by defribinating blood in the arterial and venous conditions, and then testing them antagonistically to each other. He is now engaged in conducting other experiments with a view to demonstrate that the phenomena of life may be attributed to the molecular action of such force according to the laws of magneto-electricity, or electro-magnetism.

The Difference of the Respiratory Murmur in the two Lungs.

In the year 1837, says Dr. H. **Kennedy**, in the *Medical Press and Circular*, December, 1874, when Dr. Stokes' very able work on the lungs appeared, there was a statement in it to the effect that the greater number of individuals had stronger breathing in the left than the right lung. This most important statement seemed, from some unaccountable reason, to have been overlooked, for not a single author, so far as Dr. Kennedy was aware, had noticed it, or named Stokes in connection with the point. In 1867 Flint states that on examining some twenty-four persons, he found, somewhat to his surprise, that in the great majority the vesicular murmur was loudest in the left lung. Again, in the last edition of Walshe, which appeared in 1871, the author states he had grounds for changing the opinions advanced in former years, for that he now believed the respiratory murmur was sometimes stronger in the left than the right lung. This was all the notice Dr. Kennedy could find bearing on the point; and as it seemed to him a question of much interest, not to say importance, he had, some years back, spent a considerable time in examining and tabulating a large number of cases. Unfortunately, the notes relating to two-thirds of these cases had either been lost or mislaid, and so the paper now brought forward was not at all as complete as it would otherwise have been. The number of cases he could now speak of amounted to about 100: of these, in nearly 80 per cent., the breathing was strongest on the left side, and in 20 of these, again, there was a very decided increase in its intensity on same side, which he had indicated by the plus mark. He thought it but right to state every means had been taken to make the observations accurate. For the opportunity of carrying out these investigations he had been indebted to his friend Dr. Shannon. The author then went on to say that he believed the original observation of Stokes to be correct, and for his part he had acted on it for many years, and in several instances was able to declare that the phenomena observed, which consisted in the greater intensity of the vesicular murmur on the left side, were quite consistent with a perfect state of health. This in itself was no slight matter, and more particularly where other circumstances might lead to the idea of the invasion of phthisis. All these points, however, were to be found fully discussed in the work to which he had so often referred.

The Electro-capillary Forces of the Body.

M. Becquerel, in the *Comptes Rendus*, quoted by the London *Medical Record*, January 6, 1875, speaks of this subject:

He begins by giving a rapid description of the mode of translation of blood in the vessels, in order to point out how numerous currents must arise in this translation. Arterial blood, before becoming venous, passes through capillary vessels, where it is in contact with muscles covered with exuded liquids; this contact gives rise to electro-capillary actions which concur in their nutrition and increase, evolving certain elements, particularly carbonic acid, which is carried into the lungs by the blood become venous; the arterial blood, then, continually undergoes profound changes, and is charged with carbonic acid in the lungs.

We may thus see, that the electro-motive force, direction, and intensity, produced on contact of arterial with venous blood, has not major importance, since the arterial blood becomes successively venous blood; this force is to be considered as the resultant of electro-motive forces produced in the course of the two bloods.

This is how M. Becquerel, assisted by M. Dastre, sought to measure the electromotive force in a chloroformized dog.

The carotid and jugular are laid bare on one side, and a T-tube, inverted, is introduced into each vessel (the blood having been stopped in a certain length of the vein or artery, by means of ligatures, and two incisions made, the two tapering ends of the glass tube are inserted in these, and the vessel tightly tied about them with a waxed thread); the other branch of the tube is connected with a caoutchouc tube; an electrode, formed of a thin plate of platinum, rolled in a spiral and carefully depolarized, having been inserted in the vertical branch of each tube, the blood is again allowed to pass; the two electrodes are connected with a galvanometer, and the method of opposition brought into service.

In three such experiments, the following electro-motive forces were obtained (referred to those of a cadmium couple valued at 100)

		Electro-motive forces.
Blood of carotid artery	—	21—22 . 33—43 . 28—32.5
" " jugular vein	+	

(The arterial blood is negative instead of positive, as M. Scoutteten has affirmed; but in his experiments the polarization of the plates seems to have been a source of error.) The differences arise from the difficulty of operating in the same conditions, when the artery and vein continue open some time. One may avoid, in part, these changes, by operating with two defibrinated portions of blood, one of which is introduced into a cracked tube, immersed in a vessel containing the other; the electro-motive forces are then less, and present less difference, as the following shows.

		Electro-motive forces.
Arterial blood	+	10—8 . 8—10 (average 9).
Venous "	—	

It is seen that the electric effects are here inverse to those obtained previously.

Not being able to bring each of the two bloods directly into contact with the liquid exuded from the muscles, M. Becquerel operated as follows on the live animal. Each of the two blood-vessels was placed successively in a small gutter or glass, containing (first) distilled water; then the platinum plates, thoroughly depolarized, were immersed, one in the water, the other in the arterial or venous blood. In this way a force of 67 was observed in the case of arterial blood (—) and water (+); and a force of 47 with venous blood (—) and water (+); difference 20.

Operating with defibrinated blood, on the other hand, the corresponding differences, in three experiments, were 10, 12, 10, though the forces varied from 39 to 49, with arterial blood (—) and water (+) and from 49 to 70 with venous blood (—) and water (+).

A series of similar experiments were made, in which the water was replaced by various other liquids, as bile, urine, wine, grape-juice, sugared water, and water charged with carbonic acid. It was always observed that the blood was negative to the other liquid, whence we may infer the same to occur on contact of arterial blood of the capillaries with the liquid exuded from muscles. The direction of the electro-capillary currents is such, that the interior walls of the capillaries are the positive electrodes of couples acting as chemical forces, and the exterior walls the negative electrodes. There is, then, oxidation within the capillaries, and reduction on the side of the muscles.

It has been found that the interior of a muscle is negative, in general, to the liquids which moisten the exterior part; the electro-capillary currents go, then, from the interior to the exterior; consequently, there is oxidation within and reduction without. We may thus see what a multitude of various chemical reactions take place in the interior of organized bodies.

The same mode of experimentation has been used in observing electro-capillary currents in fruits, etc., the apple, the pear, the potato, the carrot, and the turnip; on contact with water, it was always found that the interior part was positive. Thus, when fruits are wet (with fresh water), their internal parts near the external tissue continually tend to be oxidized (salt water produces contrary effects).

Before we knew of electro-capillary currents, it might have been supposed that, on sending an electric current into an organized body, in therapeutic treatment with electricity, electro-chemical actions were not produced, that is, effects of composition and decomposition; inasmuch as there were not solid bodies present, conductors of electricity, and capable of serving as electrodes (as happens when a metallic wire is introduced into a solution traversed by an electric current); but since it is known that the extremely thin liquid layer adhering to the walls of tissues permeable by capillary action behaves like a metallic plate in electro-chemical decompositions, we can perceive how these phenomena may equally be produced in the system.

The Functions of the Spleen.

We learn from the London *Medical Record*, January 20, 1875, that at the meeting of the Paris Society of Biology, on December 26, M. TARKANOFF communicated the result of a series of experiments undertaken to determine the functions of the spleen, and to ascertain if it may be considered as helping in the formation of white corpuscles. This opinion has gained so strong a footing in physiology, that it has become an axiom since the labors of Vierordt and Funk, who, comparing the blood of the splenic artery with that of the vein, established that in the latter there was one white to every seventy red corpuscles. In the arterial blood, on the contrary, the proportion was normal. They thence concluded that the spleen was an organ forming white corpuscles, but they made their experiments upon dead animals. M. Tarkanoff, however, made his experiments on living animals; he performed section of the splenic nerves, when hyperæmia and swelling of the spleen ensued, and at the same time a veritable leucocythæmia. This experiment appeared to him to be in accordance with M. Vierordt's conclusions, since greater activity in the circulation of the liver brought on an increased production of white corpuscles; but at a subsequent period M. Tarkanoff found that a simple wound, without any section of the splenic nerves, would bring on a similar leucocythæmia; the excess of circulatory activity could not therefore any longer be taken into consideration. He therefore wished to investigate the exactness of Vierordt's and Funk's data, and made an exact reckoning of the white corpuscles of the splenic vein and artery on the living animal by M. Malassez's method; but he first felt it necessary to discover in what proportions these corpuscles were present in the arterial and venous systems. The results were so different that he could not arrive at any conclusion, but he invariably found that the white corpuscles were more numerous in the left than in the right side of the heart; and in one analysis alone he found that the left ventricle contained 2,765 corpuscles, whilst the right contained only 1,530. He also established a similar fact in the vessels of the spleen, which is in opposition to what writers have hitherto maintained. The proportion of white corpuscles is always more considerable in the arteries than in the veins; in one case he found 8,900 in the artery, and only 9,500 in the vein. He also ascertained that this increase of the corpuscles in the artery was larger in proportion as the circulation of the spleen became more active. After dividing the splenic nerves he counted 10,000 white corpuscles in the artery, and only 4,300 in the vein. M. Tarkanoff, therefore, concludes that in all instances the white corpuscles are less numerous in the splenic vein, and that this diminution becomes so much the more marked as the activity of the circulation is greater.

III. PATHOLOGY.

The Physiological Identity of Inflammation and Generation.

The following novel theory is advanced by Dr. A. L. Chapman, in the Nashville *Journal of Medicine and Surgery*, January, 1875:

Inflammation is a pathological process; what, is its physiological prototype? It would be difficult to answer this question unless we knew, first, What those processes are which physiology reveals to us; and second, How these processes are typically represented. With regard to the first question, and even aside from any mere physiological inquiry, the conviction would naturally appear to impose itself upon us, namely, that nature was under a sort of necessity, after having replenished the heavens and the earth with living forms, not only to provide a means for the perpetuation, but also for the preservation of these forms; and furthermore, it would appear entirely impossible for us to imagine anything further than was necessary under the circumstances. Accordingly, we find that nature has just done this—that she has ordained one law for the reproduction of newer forms, in that the older ones must pass away, and one law for the preservation of these newer forms, up through definite elder types. These two fundamental processes, therefore, namely, generation and nutrition, are at once the cause and the reason of every vital manifestation, and are emphatically *the processes of life;* and if, in the complexity of things, we imagine we can see any other process differing from these, it will turn out, upon closer examination, to be simply some special mode or condition of one or the other of these.

For example, growth—that is to say, the addition of new elements to a part—differentiation, development, etc., are all contemplated in the generative act, and are but special manifestations of that process. So also absorption, metamorphosis, secretion, elimination, etc., are but different modes, or intermediate steps, of the one simple process of nutrition.

From the foregoing considerations, I feel authorized to lay down the two following propositions as the unequivocal postulates of biology, namely:

1st. *That every single vital operation of every organic form is but the manifestation of one or the other of the two processes, generation or nutrition.*

2d. *That every pathological process has a physiological protoype.*

What, then, is the physiological prototype of the inflammatory process? Now, since there are no other processes concerned in vital operations but generation and nutrition, it must, *ex necessitate*, be the one or the other of these. Which one? I emphatically answer, that the physiological process of generation is the one only *physiological prototype of the inflammatory process, and therefore that inflammation in itself is a real, a typical, and a veritable generation.*

Now inasmuch as this view of the subject proposes an innovation upon some of the doctrines of pathology, it will be necessary here to descend into a somewhat critical analysis and comparison of the special processes of generation and of inflammation, and, as far as is compatible with the short space of time here allotted, to hold a special inquest over the forms presented by each.

The doctrine, therefore, which is meant to be presented here, is, that when any given anatomical part has been impressed by an irritant which is competent to set up these in the inflammatory process, then, all the changes which that element is made to undergo—that its entire morphological career, in its beginning, middle, and end, is exactly and completely analogous, in all its most special and minute details, to those changes and to that career manifested by any germ-cell in the ordinary process of generation; that if, in the one case, the protoplasmic contents of a cell forms the one only substratum for all future changes, it is also so in the other (for a cell-membrane never participates in these changes); if prior to the first segmentation act in the primitive vesicle, there are to be witnessed commotions of its molecular elements, transitory changes of form, and a murky cloudiness overshadowing its moving chaos; so also in any irritated cellular element, previous to the first segmentation of its body, there is to be observed a visible moving to and fro of its microscopical elements, contractions alternating with relaxations of its protoplasmic contents, and an increasing duskiness and opacity—the cloudy-swelling of Virchow—in turn manifest the unmistakable evidences of a begun discrasia.

If during the primary movements of its molecular elements the nucleus of the fertilized ovum be raised from the cell, protoplasm and a non-nucleated cell shall now give rise to a multitude of cellular elements; so does the irritated cell during the early moments of its internal commotions, part with its nucleus, in that its nucleus divides, not in behalf of the original cell, nor for the sake of its integrity, but in the name of two other cells which have not yet originated, while the primary cell, itself yet undivided, is, to all intents and purposes, a non-nucleated body, and which, like its prototypical embryonic vesicle, shall now give rise to cellular elements, each one of which shall be a nucleated cell.

But if the embryonal layers, its tissues and its vessels, must arise from the duplicative subdivision, differentiation, and development of the embryo cell, so must the inflammatory new formation arise from the proliferating element undergoing the lesion; its tissues are the product of the primitive layers, differentiation, and development, of these elementary parts; its vessels and its blood are the heirs of the primary cells arranged into parallel strands, which at the same time form the elements of the capillary walls, at the same time the fluid plasma and the morphological elements of the blood.

In both processes, the round cell-forms which constituted the primitive capillary vessel, are subsequently differentiated into elongated polygonal cells, thus constituting the so-called endothelial tube. In both processes we have a real new formation, an original development of new elements, a primordial generation of formed tissues, out of formless protoplasm. And just as the developed embryo cannot be traced back to any mere nutritive growth or germinatic extension of the primitive cell, cannot be said to be built up upon it as upon a foundation, itself being the chief corner-stone, but, on the contrary, that as the formative process can only advance at the expense of the very existence of the fertilized ovum, so likewise the pathological new formation is not any nutritive growth or development of any older physiological part, but the pathological neoplasm itself is only possible, in that the physiological element has passed away, and if the inflammatory new formation is imposed upon the normal elements, as a kind of supernumerary tissue, a sort of parasitical development, it does not, nevertheless, form an uninterrupted, homologous structure therewith, but in all cases is a heterologous genuine new formation. In both cases, both the vessels and the tissues arise apart from, and by virtue of, a full and complete destruction of the physiological elements.

The inflammatory neoplasm is separated from the normal structure by a distinct line of demarcation, and in the beginning, *both ends* of its capillary vessels are seen to lie embedded in the new formed tissue.

There cannot be imagined a more perfect and complete type of normal generation than this.

Thus we see that the processes of generation and of inflammation are fundamentally one; that they are one in the main, and one in detail; that the one eternal law of formation, differentiation, growth and development is alike visibly manifested in both processes, and indissolubly associates them together, as the type and the prototype of one and the same vital operation. Hence the conclusion would appear to be natural and necessary, namely, that the physiological process of generation is the prototype of the inflammatory process, and, *a fortiori, that inflammation in itself is a real and typical generation.*

Psammoma of the Dura Mater.

At a meeting of the Pathological Society of Dublin, reported in the ***Medical Times and Gazette***, January 30, 1875, Dr. EDWARD W. COLLINS presented an interesting specimen of this form of tumor. In exhibiting it, Dr. Collins observed that the small tumor he laid before the Society derived its interest solely from its histological features and pathological connexions. It was taken from an elderly subject in the Anatomical School of the University, during the removal of the brain. It grew from the inner endothelial surface of the left side of the falx cerebri, where it was attached to the crista galli. It projected into the subdural cavity, and had hollowed out a slight depression upon the overlying convolutions of the left frontal lobe of the cerebrum. It was soft in consistence, so as readily to separate from its attachments, about the size of a walnut, rather more oval than round, and of a grayish-white color. When hardened in spirit it exhibited microscopically the appearances characteristic of the tumor to which the names "psammoma" and "angiolithic sarcoma" have been given. A fibrous investment and fibrous stroma constituted the chief bulk of the tumor. Embedded in it were very minute isolated calcareous particles of brain sand, reflecting light and presenting their peculiar concentric lamellar arrangement when examined under a high microscopic power. They varied somewhat in number and size in different parts, but were chiefly remarkable for their very small size and scanty distribution throughout the fibrous elements of the tumor. The tumor was also remarkable for its vascularity. Some of the sand particles bore a suspicious proximity to the walls of the blood vessels, though no such definite connection with the vascular wall could be clearly ascertained as led Ranvier to the conclusion that they were primarily deposited in ampullary dilatations of the walls of the vessels, from which they subsequently became detached. No cells were found in the tumor differing from those proper to sarcoma, so as to favor the epithelial mode of development as suggested by Meyer and Robin; but in some instances the concentric arrangement of the spindle cells described by Steudener was observed. The view of Virchow, that such tumors were hyperplastic formations, owing their origin to increased development of the sand-formations which physiologically are found so frequently on the inner surface of the dura mater and in connection with the choroid plexuses, seemed to Dr. Collins the most correct as regarded the specimen he exhibited. Apart from its special pathological characters, the tumor was interesting, as only one other specimen of this form of tumor had been brought before the Society, two years since, by Dr. Yeo, which would be found to differ in not a few respects from that Dr. Collins had detailed.

The Pathology of Fatty Degeneration of the Heart.

In the Dublin *Journal of Medical Science*, February, 1875, Surgeon JOHN MARTIN says:

What are the facts from which we may hope to arrive at a just conclusion as to the nature and cause of this disease?

A posteriori reasoning from the heart lesion alone, does not appear to have given any satisfactory result. Let us then endeavor to attain it by reasoning back from other symptoms and conditions.

In reviewing these, the question arises, if this be a change of muscular tissue, analogous to that producing adipocere after death, why is the heart peculiarly prone to it, and why does it not occur as frequently in other muscles?

Then we are led to reflect on the differences between *heart*-muscle, and this tissue as found in other parts of the body. We know that it differs in the arrangement of its fibres, but also chemically in this respect, that the sugar, *inosite*, which Scherer first obtained from muscular tissue, occurs much more abundantly, as Lehmann has demonstrated, in the tissue of the heart than in other muscle. Now, the most prominent symptom or condition accompanying this change, is atheroma and calcification of the larger arteries. This degeneration is looked upon not only as a pathognomic sign of the fatty change, but, further than this, as identical with it. Virchow writes relative to atheroma: "When the matter began to be examined more minutely, and fatty particles were found at very different points in the walls of the vessels, both when atheroma was and was not present—when at last the conviction was obtained that the process of fatty degeneration was always the same, and was identical with atheromatous change, it became the custom to unite all the forms of the fatty degeneration of arteries under the designation *atheroma*." Now, the identity of the pathological processses which result in the fatty and calcareous generations being admitted, and taking into account the chemical relations of the component elements of the tissues involved in these changes, I believe pathologists are in a position to attempt an explanation of them, if not as yet indubitable, at least more satisfactory than the views hitherto maintained. The explanation to which I refer is suggested by the chemical peculiarity of heart-muscle above mentioned, namely the larger amount of inosite contained in it than in other muscle; and the known chemical relations of this body, especially its behavior with calcic salts, in the presence of a ferment.

Now, inosite, one of the glucoses ($C_6 H_{12} O_6$), undergoes first the lactic, and secondly the butyric fermentation with chalk and casein or fibrin: lactic and butyric acids being formed, and lactate and butyrate of lime resulting.

The conditions existing in the fatty degeneration of heart-muscle are those in which such a change, or a change analogous to this, may be expected to occur.

Because we know that carbonate of lime is in excess in the system (not absolutely but relatively, as will be subsequently considered), which salt coming into contact with the vascular walls, meets, in infinitely minute quantity in their muscular layer, this substance inosite, and in the same tissue *syntonin*, which latter acting as a ferment, the above decomposition of the muscle sugar results. As the degeneration progresses, changes in the histological characters of the tissue advance *pari passû*, with the chemical metamorphosis of its elements. Gradually the normal cell-element of the muscular fibre disappears, and is replaced by minute particles of a substance having the nature of—not a fat, but—a *soap*, that is, of a compound between a fatty acid and a metallic oxide. Now, this view not only explains the relationship between fatty degeneration and atheroma, but also their identity, as assumed by Virchow in the passage above quoted.

Thus, it will be seen, the term *fatty* degeneration should be restricted to the deposition of real adipose tissue upon the surface of the heart, and around its muscular fascicles; while *soapy* degeneration would be the more appropriate, if not very elegant term, by which to designate the necrobiosis which is at present called fatty degeneration of the heart.

The Origin of Pus.

In an article in the *Journal d'Anatomie*, January, 1875, the writer, M. Picot, reviews the late papers on this subject in support of Cohnheim's theory. He remarks that no evidence is afforded in any of them that the observer has actually witnessed the escape of the corpuscles from the vessels. They find them in the tissue on section, and they take it for granted that the corpuscles have traversed the vascular walls. Those who do not admit the migration of the white corpuscles may be divided into the adherents of Virchow, who derive the corpuscles in question from the proliferation of the cell elements of the cornea, and those who, denying the hæmatic origin of the pus-corpuscles as well as their descent from the proliferation of connective-tissue corpuscles, decline to commit themselves to any express statement of their mode of genesis. Amongst the former may be enumerated Duval and Pfungen; and Feltz holds the same view in a somewhat modified form, believing that the inflamed corneal or connective-tissue corpuscles become filled with a finely granular protoplasmic matter, in and at the expense of which the leucocytes are formed. Boettcher's observations have led him to very similar conclusions, the corneal corpuscles, in his opinion, breaking down into a granular mass, in which the pus-cells arise without pre-existing nuclei. Purser and some others appear to hold the intermediate view that, in the case of the cornea at least, some of the pus-corpuscles proceed from the proliferation of the corneal corpuscles, whilst others are escaped white corpuscles of the blood. In his last communication Cohnheim materially alters his former views, and holding the pressure of the blood, the amœboid movements of the white corpuscles and the dilatation of the pores of the vessels after distension, as in all circumstances exercising a secondary influence only on the escape of the white corpuscles, now attributes their escape to an alteration of the walls of the vessels themselves, the nature of which alteration he does not, however, attempt to define. M. Picot's observations, now recorded, were made upon the mesentery of the frog, with a view of determining the changes undergone by the connective-tissue corpuscles. Inflammation was excited by the introduction of charpie or of filtering-paper, or by the injection of slightly irritant fluids, such as weak alcohol-and-water or tincture of iodine. Many animals were operated on, and the examinations were made every two hours. The results have been to show that the corpuscles of connective tissue undergo progressive enlargement, so that in the course of twenty-four hours they have doubled their original size. They become at the same time granular, but their nuclei remain visible. The vessels are filled with red blood-corpuscles having a faint granular zone round their nuclei, with here and there a white corpuscle presenting its normal aspect. Outside the vessels are also leucocytes, but these—and this is he thinks very important in regard to their genesis—present great variations in point of size; and in the formation of this first set of pus-corpuscles the connective-tissue corpuscles take no part whatever, excluding, therefore, all idea of proliferation. By-and-by, however, the enlarged connective-tissue corpuscles lose their nuclei and break down into a granular mass, then become fusiform, and in the course of the next forty-eight hours present all kinds of changes of form. From this mass leucocytes may arise. It thus appears that M. Picot admits two modes of origin of the white corpuscles: one by independent genesis in the tissue, and the other by development from the granular mass resulting from disintegration of the normal cellular elements.

On the Pathology of Lupus Erythematosus.

George Thin, M. D., says in the British *Medical Journal,* January 23, 1875:

Microscopical examinations of the skin in different stages of lupus erythematosus by Neumann, Giddings, and Kaposi have shown that in this disease there is great vascular congestion around the sebaceous and sweat glands, more or less destruction of the glands themselves, and cell-infiltration of the surrounding corium. Dr. T. had an opportunity of examining the skin of a man who died of the disease in Vienna in 1873, and selected a portion from the inner surface of the second toe, beyond the area of the sebaceous glands, and in which the disease had begun to show itself only for a few weeks before death. He found the sweat-glands, fibrillary tissue, and rete Malpighi absolutely normal in appearance. There was enormous dilatation of the capillaries, most marked in the papillæ and around the sweat-glands, their contours being indicated mostly by the red blood-corpuscles with which they were filled, but the vessels themselves being visible in some of the sections. The small veins were also distended by blood-corpuscles. The condition of the capillary blood-vessels being such as would, if persistent for any length of time, account for all the changes described in the tissues of the skin by the above-named observers, and being found in the case of this man to have occurred antecedent to any such changes, the accuracy of the view that lupus erythematosus primarily affects the glands of the skin was put in question. The author believes that in the present state of our knowledge of the pathological anatomy of the disease, which, however, he considered to be very defective, the earliest morbid condition that has been detected is dilatation and distension of the capillaries, and consequently in life stasis of the circulation.

PHYSICS, BOTANY, CHEMISTRY, AND TOXICOLOGY.

II. BOTANY.

The American Agave.

Dr. A. N. Ellis, M. D., A. A. Surgeon U. S. A., Fort Wallace, Kansas, writes to the *Cincinnati Lancet and Observer*, January, 1875.

Through the columns of your journal, I would like to say a few words on the "American agave."

Several years ago, when I was the attending physician to the Southern Apaches, in New Mexico, my attention was first called to its valuable properties as an anti-scorbutic. When the Southern Apaches were removed from Canada-Alamosa, on the Rio Grande, to the Tularosa Valley, in the Mogollon Mountains, the altitude was so great—between seven and eight thousand feet above the level of the sea—and the seasons so short, that but few vegetables were raised. The food of the Indians being almost exclusively meat, an anti-scorbutic was demanded. Much to my surprise, there was not even the slightest appearance of scurvy. Investigation showed that these Indians were making use of the agave Americana, which grows in abundance in that mountain region. It is an evergreen, succulent plant, often growing to a height of fifteen feet, and is found in Texas, New Mexico, Mexico, and Central America. It bears some resemblance to the genus *aloe*, and hence it is often spoken of as the *American aloe*.

The juice is expressed from the leaves and the root. When fresh it is of a sweetish taste and nauseous odor, and reddens litmus paper. Evaporation converts it into syrup, and fermentation into an intoxicating drink. The Apache seems to be acquainted with the virtues of the plant, more especially those which constrain him to show forth his real disposition. The Mexicans employ it in the treatment of constipation and amenorrhœa.

I made use of this remedy in the treatment of a number of soldiers suffering from scurvy, with the happiest results. Found it as prompt and efficacious as lime juice. Gave two or three ounces twice a day of the fresh juice. Maceration of the root and leaves produces a soft lather, and is much used in washing clothes, more especially in garments of beautiful and delicate colors likely to fade under the use of common soap. The fibers of the old leaves—those which have been macerated for several days—are used for making thread.

The American agave is indigenous in tropical America, but has been transplanted to Europe, where it is used in making hedges. It is not this plant which produces the intoxicating *pulque*, so much used by the Mexicans, but one of another species, to which it bears many points of resemblance.

III. CHEMISTRY.

New Process of Manufacture of Fatty Acids.

The *Scientific American*, March, 1875, says:

M. **Bock** has demonstrated that the greater part of the neutral fatty bodies are composed of small fat globules contained in albuminous envelopes of from 1 to 50 per cent. of the weight of the bodies. The excesses of alkali, of pressure, or of heat necessary to decompose these bodies are in reality applied in order to destroy or eliminate the albuminous envelopes.

The coloring matter of the fatty bodies, or that which forms during their decomposition, is attributed to the envelopes, and for this reason M. Bock proposes to break or partially destroy the latter by the action of a small quantity of sulphuric acid at a determinate temperature and during a limited time. The fatty matter is then boiled with water, for several hours, in open vessels. The water charged with glycerin is then decanted, and the glycerin separated and pumped.

It remains then to remove the albuminous envelopes and the coloring matter, which is done by submitting the material in the vessels to the action of weak solutions of oxidizing agents. When the reaction has continued for a sufficient period, the substance is left quiet, and subsequently decanted, washed, and pressed.

One of the advantages of this process, according to the inventor, is that all the operations are performed in open vessels, the contents of which are raised to ebullition by steam, not exceeding in pressure 37 lbs. per square inch.

A New Reaction of Berberine.

This reaction, discovered by M. **Klunge**, is said by the *Journal of Pharmacie* to be much more delicate than any hitherto described. An aqueous solution of berberine is made strongly acid with sulphuric or hydrochloric acid, and chlorine water added. In a solution containing $\frac{1}{10000}$ of berberine, a band of a lively red color is formed at the point of contact of the two liquids; on shaking, the color spreads throughout the mass. It persists for some time, if too much chlorine water has not been employed. A solution containing $\frac{1}{250000}$ only, gives a rose-colored tint. The yellow coloring power of berberine is perceptible to $\frac{1}{200000}$. Brucine also gives a red coloration with chlorine, but it is fugacious, and the solution of brucine is colorless. To ascertain the presence of berberine in vegetable tissues, M. Klunge boils a fragment in water acidulated with sulphuric acid, and then adds the chlorine. By this means he has recognized the presence of berberine in a great number of substances.

On Creasote and Carbolic Acid.

On these drugs Dr. J. F. **Flagg** writes to the *Dental Cosmos*, February, 1875:

The term "creasote" is applied alike to that medicament and carbolic acid, when the latter is furnished in the form of an oily, odorous fluid, analogous to the former in appearance, and somewhat, though distantly, analogous to it in odor. From the appearance alone of these two articles, it is impossible to decide which is creasote and which carbolic acid, but an expert can usually determine with facility the genuineness of either from the marked difference in odor. I say *usually*, because the most inodorous specimens of creasote and the most odorous specimens of this form of carbolic acid do approximate quite closely in this characteristic; but even in these, the peculiar *wood-tar* component of the odor of creasote is found wanting, if delicately searched for, in smelling oily carbolic acid.

Another peculiarity which these preparations possess in common is that of being practically insoluble in water. It is in this particular that they both differ markedly from the crystallized article which is usually referred to as carbolic acid. It is also this fact which adds greatly to the necessity of explicitly establishing the medicine intended to be indicated by me when reference is made to carbolic acid.

It will readily be recognized that the characteristic of insolubility in water would much enchance the value of applications made within the mouth, and thus it is that we find most decided advantage in the employment of oily, instead of crystallized, carbolic acid.

At this point I must mention a further complication which exists in this matter, viz., that still another preparation of carbolic acid possesses physical characteristics differing from those previously mentioned, in that it is, when fluid, of the general appearance of creasote in consistency and color, and insoluble in water, and yet quite crystallizable when exposed to the action of light, or reduced to a lower degree of temperature.

In experiments with this material I have found no practical therapeutic difference between it and the constantly-fluid carbolic acid, while the odor of the two is quite the same.

I have said that it is impossible to determine with certainty the difference between samples of creasote and carbolic acid by the visual test, and that it is difficult, in some exceptional instances, to detect the difference even by the sense of smell, though this is usually quite distinctive; but we have a series of tests which, in the aggregate, are apparently quite conclusive:

1. Equal parts of creasote and glycerin shaken together make a turbid mixture which soon separates,—the creasote floating.

Equal parts of carbolic acid and glycerin make a clear solution. (Mr. Thomas Morson's test.)

2. Take half a drachm of collodion, to which add half a drachm of absolute alcohol: a clear solution results.

To this add half a drachm of creasote; a clear solution still results, varying in color according to the color of the creasote.

Again, prepare a similar solution of collodion in alcohol, and upon the addition of half a drachm of carbolic acid, a beautiful *gelatinized* mixture is the immediate and persistent result.

3. To one drop of creasote add twenty drops of absolute alcohol. If to this are added a few drops of an alcoholic solution of the neutral syrup of the chloride of iron, a rich olive-green color is produced.

If one drop of carbolic acid is dissolved in twenty drops of alcohol, and a few drops of the chloride of iron solution are added, an orange-brown color is given. I am indebted to my friend, Prof. Henry Morton, for information regarding this test and also for directions in preparing the solution of chloride of iron.

"The neutral ferric chloride is prepared by taking a dilute solution of that salt as it is ordinarily found, and adding ammonia as long as the precipitate formed freely dissolves on stirring; this can be carried too far.

"Evaporate the solution so obtained to a syrup; dissolve this in alcohol for the alcoholic solution."

The Action of Sunlight on Olive Oil.

L. **Moschin** says in the *Archiv der Pharmacie*, November, 1874, that an exposure of one month to sunlight suffices to produce a complete change in the color of olive oil, without any alteration of the specific gravity. If sulphuric acid be added to oil so treated, the latter assumes not a greenish color but a reddish yellow; with nitric acid or caustic soda a whitish color is produced. If the oil be set in an open vessel, it still retains after a month the property of thickening under the influence of fumes of nitric acid; after three months the oil, though changed in color, loses this property, and does not thicken even when acted upon by a solution of mercuric nitrate which is saturated with nitric acid. The oil altered by sunlight has a strongly acid reaction, a somewhat rancid smell and taste, and easily dissolves aniline red, becoming intensely colored. From the foregoing it will be seen that olive oil can only be distinguished from others by means of nitric or sulphuric acid or caustic soda when in the normal state; and that the use of aniline red, recommended by Jacobson for the detection of free fatty acids in falsified oil, may lead to the condemnation of an oil which has become somewhat rancid from the action of sunlight. Olive oil in the normal condition holds in solution a yellowish substance which is colored green by acids, and which is decomposed by sunlight, so that it reacts neither with acids nor with caustic soda. Besides this, uncombined acids are formed under the influence equally of sunlight and of acid bodies, and the oleine assumes the nature of elaidin.

IV. TOXICOLOGY.

Chloral Hydrate as an Antidote to Strychnia.

The most extraordinary case of recovery from strychnia poisoning, due to treatment by chloral hydrate, is reported in the *Lancet*, April, 1875, by Dr. **Charteris**, physician to the Royal Infirmary, Glasgow. On March 12, a butcher of that city, in a despondent condition, bought from a druggist two sixpenny packets of Gibson's Vermin Killer. These contained two grains of strychnia in each. Then he adjourned to the parlor of a public house, bought some whisky, in which he dissolved the contents of the two packets, added some ginger ale, and drank off the mixture. In order to make sure work of it he bought another draught of ginger ale, and drank it from the same glass, so as to dissolve any remnant of the poison. This was about 11.30 A. M. Then he walked across the street to a butcher's shop and asked to be allowed to sit down. A succession of tetanic fits ensued, and these seem to have continued for several hours. About 1 p. m. an emetic of hot water and sulphate of zinc was given, which, however, produced only partial vomiting. It was 3.30 P. M. when he was brought to the Royal Infirmary. He was in great agony: violent tetanic spasms followed each other in quick succession, increasing in severity. With great difficulty the stomach pump was passed, but only some sour watery fluid was withdrawn. At 4.50 P. M. 10 grains of chloral hydrate in syrup was administered. Twenty minutes after the dose was repeated, and at 5.30, 20 grains were given. Immediately afterwards there was a severe and prolonged spasm, succeeded by a flaccid state of the muscular system, hurried respiration, quickened pulse, and drooping eyelids—phenomena which indicate the effect of chloral. Three more doses, ten grains each, were administered between this and 9.30 P. M., the symptoms of poisoning subsiding. The patient was dieted on milk and rice, and in four days had completely recovered. He said if he wished to die again he would choose something other than Gibson's Vermin Killer. Dr. Charteris afterwards tried some experiments on rabbits, and found that the administration of chloral hydrate after strychnine most decidedly checked the poisonous effects, though in one case, where a longer interval had been allowed to elapse between the poison and the antidote, the animal was paralyzed from the middle of the spine downwards. It is stated, also, to account for the slowness of the action of the strychnine in the man's case, that he had previously taken a substantial breakfast of ham and eggs.

Poisoning by Strychnia, Successfully Treated with Chloroform and Cannabis Indica.

Dr. Lawrence Johnson writes to the New York *Medical Record*, January 30, 1875:—

At about 8 p. m., September 29th, 1874, A. A. R., a healthy young man, aged twenty-two, with suicidial intent, swallowed five or six grains of strychnia in a glass of soda water. He had obtained it of a druggist upon the pretense of wishing to poison rats; and the druggist informed us of the quantity furnished.

I was called to see him about fifteen or twenty minutes later; found him half-reclining upon a chair, being held in that position by a man on either side. He was in violent tetanic convulsions, every muscle seeming to participate, his face livid, and frothy saliva flowing from the mouth. I immediately sent for chloroform, which was procured in about five minutes; and having laid the patient upon the floor, proceeded at once to administer it to him by inhalation. He passed under the anæsthetic influence rapidly, and simultaneously his convulsions ceased.

About this time Drs. Wm. C. McFarland and T. L. Janeway arrived, and we consulted together. We concluded to continue the chloroform, allowing a brief respite now and then to note the effect of its suspension.

During one of these intervals shortly afterward, our patient opened his eyes and spoke, asking for drink, etc. Giving him water, he drank it, but with difficulty, the exertion bringing on a convulsion. With the idea of getting rid of any of the poison remaining in the stomach, we gave him two doses of sulphate of zinc, grs. xv. each, within about ten minutes of each other. Shortly afterward he vomited freely, ejecting a large quantity of liquid, together with some undigested food. During the whole of this time every effort at swallowing was accompanied or followed by convulsions, as was nearly every voluntary movement, or even a current of air blowing over him, and consequently he was kept steadily under the influence of chloroform to a greater or less extent. At 10 p. m., the convulsions continuing whenever chloroform was suspended, we gave ʒi tr. cannabis indica, and ten minutes later another dose of like quantity. Soon afterward he vomited. Half an hour later another dose of ʒi was given, and two more at intervals of half an hour, all of which were retained. The convulsions meanwhile diminished in frequency and force, and chloroform was only resorted to when they occurred. After 11 o'clock convulsions seldom occurred spontaneously, for the most part being directly induced by voluntary movements upon his part, or by his attendants accidentally touching him. At 1 a. m. we considered him out of danger and left him for the night.

He had but one convulsion after our departure—at 3 p. m.—and at 9 a. m. we found him able to walk to his home, half a block distant.

How much of our success should be attributed to chloroform and how much to cannabis indica, is of course a matter of conjecture. That sufficient strychnia had been absorbed to produce death, I think the violence of the initiatory symptoms warrants us in assuming.

Case of Poisoning by Chloral.

Dr. CHOUPPE, in the *Gazette Hebdomadaire* for February 5, publishes a case of poisoning by chloral which he had read before the Society of Biology. He observes that chloral was scarcely introduced, when large doses came to be administered with apparent innocuity. Thus, M. Martineau related a case of cancer of the ear, in which, for the relief of intolerable pain, he administered the enormous quantity of sixteen grammes in two hours; while M. Bourdon stated that in puerperal convulsions he often gave ten to twelve grammes; and M. Mialhe declared that he considered it almost impossible to kill an animal by chloral given by the mouth.

The following case, however, shows that large doses may be attended with great danger. Dr. Chouppe was called at midnight of January 12 to a gentleman, whom he found quite insensible, with stertorous breathing, a punctiform contracted pupil, irregular respiration, and a small, irregular pulse. The nature of the case was obscure until a bottle containing some remains of chloral was found. The patient's state became rapidly worse: the respiration became very slow, the pulse imperceptible at the wrist, and the movements of the heart scarcely audible, the trunk and limbs being covered with a cold and viscous sweat. By one o'clock all spontaneous respiration had ceased, and the heart could no longer be heard. Inductive electricity and artificial respiration had been resorted to, with little or no effect, when the reporter called to mind a case of poisoning by morphia, at New York, in which artificial respiration had been kept up for several hours by faradization of the diaphragm. One of the poles was passed over the track of the phrenic nerve, and the other over the insertions of the diaphragm, a thermometer placed in the rectum indicating a temperature of 30.2° C., being the lowest observed during the progress of the case. The application was continued for thirty-five or forty minutes, at the end of which time the patient respired spontaneously, although slowly and irregularly, while the radial pulse could be faintly felt, and the movements of the heart were rapid. The first sign of returning sensibility was a dilatation of the pupils during the passage of the current, this ceasing when the current was interrupted. Next, followed some cries, and lastly a complete return of consciousness during the passage of the current, the patient then recognizing those around him. At three o'clock he fell into a calm sleep. His pulse was 80, strong and regular; the respiration was regular and 20; and the rectal temperature rose to 37.4°. The sleep lasted until nine, the patient awaking reposed and unaware of what had occurred.

It seems the patient took the chloral for the first time because he slept badly; and the bottle whence he drank the solution was supposed to have contained from thirteen to fifteen grammes, of which he probably took a third. Very soon after he commenced feeling heavy, and undressed himself, after which time he recollected nothing.

Strychnia versus Opium.

Dr. A. W. FONTAINE, of New Canton, Buckingham county, Va., cites this case in the *Virginia Medical Monthly*, December, 1874:

Some time in August, 1874, I was called in haste to see a little negro child just three days old, to whom, the messenger reported, had been given three or four drops of laudanum the night before. I arrived about 3 p. m. The parents corroborated the statement of the messenger. The condition of the child (then twenty-six hours after the dose was taken) fully verified the statement. It lay in a profound stupor, with cold extremities, slow pulse and respiration, occasionally sighing or moaning. At intervals of a minute or so it would suspend breathing entirely for half a minute at a time, and resume it with a hasty jerking and tremulous inspiration.

Treatment.—By dint of rolling, tossing, and slapping, fanning and sprinkling with cold water, it was so far aroused in fifteen or twenty minutes, as to swallow something. Then I dissolved $\frac{1}{4}$ gr. sulphate of strychnia in eight teaspoonfuls of water, and commenced to give it from fifteen to thirty drops about every fifteen minutes. Sinapisms, made from a box of strong, fresh mustard, were applied to the feet and ankles, hands and wrists, and renewed again and again. Having some freshly roasted and ground coffee prepared, I put about $\frac{1}{2}$ oz. of it in a pop-bottle, and then nearly filled the bottle with hot-water. This was placed loosely corked in a pot of boiling water and thus boiled for ten minutes. The strong coffee thus prepared was given as often and fast as possible, between the doses of strychnia. The tossing, slapping, rolling, fanning and sprinkling were not suspended a moment longer than to give the medicine and coffee. My Faradic machine was broken, and several miles distant, or I should have had much less trouble in "agitating the subject."

However, in less than two hours, and after the first half of the strychnia had been given, there were signs of improvement; and in three hours from the first dose the child was so far recovered as to draw a swallow or two from the mother's breast. This it was encouraged to do at intervals (after a little shaking each time), and the intervals between the doses of medicine and coffee were gradually lengthened until finally stopped, after it had taken about six-eighths of one-fourth of a grain of strychnia.

No spasmodic effects were perceptible from the use of the medicine. And the mustard, though applied undiluted and repeated about three times in as many hours, did not vesicate or injure the skin at all. It was barely reddened towards the last.

The laudanum had been given the child to "quiet him." The parents in their ignorance did not apprehend any danger until the child had slept twenty-four hours.

Opium Antidotes.

In the Cincinnati *Lancet and Observer*, February, 1875, a discussion at the Cincinnati Academy of Medicine on this topic is reported:—

Dr. W. B. Davis said that one year ago he was called to see a man who, in a fit of melancholy, had taken about three grs. of morphia. Found patient with skin cold and clammy; pupil contracted; respiration slow. He injected $\frac{1}{20}$ gr. sulph. atropiæ every hour. There was a slight response on the part of the pupil, but there was no reaction. The patient died with all the symptoms of opium poisoning. Speaker thought the antagonism between opium and belladonna was not proven; the most eminent therapeutists of this country do not believe in the antagonism of the two drugs. The most eminent foreign writers are also opposed to antagonism, some claiming that there is an increased poisonous effect when both are given. Distinguished experimenters claim that in the final stages of poisoning by these articles, the conditions are the same—death being produced by failure of respiration and failure of the heart's action.

Dr. Quinn said he had treated two cases of opium poisoning without the use of atropia. He thinks there is some antagonism, but whether of benefit in the treatment of poisoning, he cannot say. A child five months of age was given ʒss. of tr. opii, by mistake. Syr. ipecac was administered by the mother, and on the arrival of the doctor he administered salt and mustard, which excited free emesis. The child was kept awake; the pupils gradually dilated, and the child slowly recovered.

A girl, aged twenty years, took opium. An emetic was administered and a stomach-pump used. The patient was kept awake and finally recovered.

Dr. Murphy spoke of a series of experiments by Dr. Campbell, of Alabama, on the reflex system. In cases of poisoning by opium, Dr. C. had used caffeine as an antidote. It was administered by the stomach if the patient could swallow; if not, by the rectum. In several cases it was used when the patients were in extremis. Dr. M. had confidence in strong coffee. He thought the question of antagonism could not be determined by experiments on inferior animals, as we have only an approximate effect on those animals in experiments to test the physiological effects of drugs. For instance, goats can eat tobacco with impunity. In judging of the toxic effects of opium, some account should be made of the condition of the person at the time the poison was taken, as influence of the mind, state of nervous system, etc. In the cases reported by Drs. Davis and Comegys, where the drug was taken with suicidal intent, the patients had lost vital resistance—moral and mental support. The nervous system was undermined. The only case in which we could fairly judge of the effects of opium and atropia was when the poison had been administered to a person in good health. When opium had been given by mistake to such a person, he thought the hypodermic use of atropia would be proper. He thinks not enough account is made, in the treatment of cases of opium poisoning, of what are regarded as slight adjuvants, as flagellation, keeping the patient moving, etc. In the treatment of a case of opium poisoning, speaker would use very small doses of atropia, and *vice versa.* He commended to the Society the use of caffeine in such cases.

Dr. Comegys reported a case to which he had been called. He found a man who had attempted suicide with opium, with a slow, weak pulse, clammy skin, very slow respiration. Artificial respiration was kept up for four hours, and patient recovered. In a case of accidental poisoning by belladonna, he found the patient with loss of power to expand chest. Tr. opii and brandy were freely given. The action of heart in poisoning by belladonna is stronger than in opium poison. Belladonna stimulates the nerve centres. Arterial tension is increased by both drugs when not given to excess.

Dr. Taylor said that the experiments which had been made on inferior animals had not been satisfactory, some of them bearing very large doses of atropia. In his paper he had confined himself to the effects on man of toxic doses. He thought there was little to encourage us in the use of one of these poisons as an antidote to the other. He would hesitate to use them. Small doses of atropia are sometimes dangerous, while at other times larger doses may have less effect. He also thought that in the treatment of poisoning by opium, exercise to keep the patient awake was sometimes carried too far. In these cases, the exhaustion caused by the drug was increased by exercise. In an extreme case, he would not allow active exercise.

Cases Illustrating the Effects of Belladonna in Opium-Poisoning.

Thos. J. Riddell, M.D., of Richmond, Virginia, cites the following cases in the Virginia *Medical Monthly,* January, 1875:—

Case I. I was summoned to see Mrs. V., September, 1871, who had taken *two ounces of laudanum,* two hours previous to my visit, the greater portion of which had been absorbed. The usual remedies were resorted to as speedily as possible, but proved ineffectual. She was completely narcotized. Pupils firmly contracted.

Although the case appeared hopeless, yet with the concurrence of a medical friend, we deemed it advisable to try sulphate of atropia hypodermically—$\frac{1}{60}$ grain in each arm. In less than thirty minutes after its use, the pupils were well dilated, though no other visible effect was produced; light now exerted no influence in contracting the pupils—they remained dilated. And though the patient did not recover, the promptness of the action of the atropia in dilating the pupils in the prostrated or completely narcotized condition of this patient seems worthy of mention.

Case II. Was called to Mrs. W., December, 1872, who had taken *several grains of morphine* an hour or two before I was called in; found her in a comatose condition, with all the symptoms of opium-poisoning well marked.

I gave twenty drops of the tincture of belladonna in a mucilaginous mixture every twenty or thirty minutes, until its effects on the system were produced, which was accomplished after the administration of some four or five doses; no other medicine was given internally, though other means were resorted to—such as cold to the head, walking her about, etc. She entirely recovered, and was up the next day.

I am aware that the tincture and extract of belladonna have been used for several years in poisoning by laudanum with success, and that the sulphate of morphia has been administered to counteract the alarming symptoms of atropia poisoning. This being true, that opium and belladonna act on the nervous system antagonistically, the natural inference is, that the active principle of belladonna might be prescribed with equal propriety by the profession whenever the poisonous principle of opium has become absorbed; though it must be admitted that after the nervous system has become completely prostrated and narcotized (as in Case No I.) from the effects of opium poisoning, it is impracticable to find any remedy that would restore the system to its original status.

The Poisonous Action of Tincture of Arnica upon the Skin.

Dr. James C. White gives the subjoined cases in the Boston *Medical and Surgical Journal,* January 21st, 1875:—

Case I. A gentleman, sixty-five years of age, in descending the stairs to mount his horse for a ride, slipped and scraped the lower part of his back. A handkerchief dipped in tincture of arnica was immediately applied to the bruised skin of the buttocks, and worn in contact with the part during the ride, which was not given up on account of the injury. Before his return a good deal of itching was felt in the back, which caused the parts to be rubbed vigorously. On examination after reaching home, the skin was found to be already greatly congested, and the irritation of the parts increased a great deal during the day and night. On the next day I was called to see him. The skin of the back, nearly to the shoulders, was in a state of active hyperæmia, and already covered with innumerable papules. The inflammatory process extended rapidly downwards nearly to the knees, and forward upon the abdomen and genitals. In a few days these parts presented all the characteristic appearances of acute eczema in its various stages of progression: general hyperæmia, papules, vesicles, excoriated and exuding surfaces, and crusts. The subjective symptoms were intense itching, stinging, and burning in the parts. Scarcely any clothing could be borne in contact with the skin by day, and sleep was for a few nights almost impossible, but the system generally was only slightly disturbed. The course of the affection need not, however, be given in detail, as it did not vary in any important particulars from that of an ordinary acute eczema of high grade and short duration; the process reaching (under treatment) its height within a week, and rapidly disappearing with the usual retrogressive manifestations.

Case II. A gentleman, sixty years old, applied to his right arm above the elbow a fomentation of tincture of arnica on two successive days, on account of a so-called rheumatic pain in the limb. The part became generally reddened and swollen in a few days, and ten days after the applications were made he consulted me. The arm from the elbow to the shoulder at that time was considerably swollen, of a vivid redness, and covered over the lower half of this district with a very thick eruption of papules, many of which were already partially converted into vesicles. Great itching and burning were felt in the part, which gradually ceased as the inflammation subsided. The efflorescence under treatment did not progress beyond the vesicular stage, and the skin returned to its normal state in ten or fourteen days subsequently.

Case III. A gentleman, aged fifty-two years, was thrown from his carriage and sprained his knee. With the consent of his family physician, he dressed the part with fomentations of tincture of arnica and water. After two days' use of these the skin over the knee became so red that the physician advised him not to apply them again. The redness extended down the leg nearly to the ankle, and upon this surface there was developed in a few days a general eruption of papules. A similar process, but of less severity, ensued a day or two later upon the inner surface of the corresponding parts of the other leg, which were more or less in contact with the fomentations. The efflorescence upon the legs did not pass into the vesicular stage generally, but remained at its height for a week, and then very gradually subsided under treatment. Three days after the use of the fomentations, an inflammation of the skin of the face also began, which increased in severity until I saw him, one week after the injury. His whole face was then very much swollen, of a deep red color, and covered with papules and vesicles towards its periphery, whilst upon the central portions there was a very free exudation of serum from many excoriated points, which in parts had already stiffened into crusts. The vesicles and papules on the forehead were arranged in prominent and isolated clusters of two or three individuals in each. The whole had an artificial look, and strongly resembled in appearance a severe case of ivy-poisoning. The subjective symptoms were mainly intense itching with slight burning; and considerable suffering was thereby occasioned for several days. After two days' treatment the amount of free exudation was largely reduced, and no new efflorescence appeared. The swelling and redness were still considerable on the fourteenth day after the beginning of the inflammation, but were rapidly diminishing, and at the end of the month the skin was again in its natural state.

The nature and cause of the affection of the skin in these cases cannot, I think, be misinterpreted. In all of them we have an acute inflammatory process, confined to the upper dermal layers, and manifesting itself, according to the stage reached, by the following appearances: hyperæmia, papules, vesicles, excoriations, crusts, and scales, in regular sequence. The local sensations were intense itching and some degree of burning in the parts affected. There was no constitutional disturbance. In course, character, and sequence of the lesions in their development and retrogression, in the intensity of the subjective and absence of constitutional symptoms, the affection is unmistakably acute eczema, caused by the arnica.

Gout as a Result of Lead Poisoning.

In a clinic at Guy's Hospital, reported in the *British Medical Journal*, January 2, 1875, Dr. S. Wilks brought forward a young man, aged twenty, who had worked since he was a lad in an oil-cloth factory, and had had much to do with white lead On two occasions he had had colic, but rapidly recovered under treatment. For some weeks he had not felt well, being weak and having flying pains about him; but he had continued his work until a few days before admission, when his present colicky symptoms appeared, which, increasing in severity, obliged him to come to the hospital.

On admission, his principal symptom was colic. He was a spare, pale young man, with a well-marked blue line on the gums; his left foot was painful, from inflammation of the ball of the great toe, which exactly resembled gout. The urine was slightly albuminous and the radial artery was somewhat hard. He was first ordered opium and afterwards croton oil; and, when free of the colic, iodide of potassium.

Clinical Remarks by Dr. Wilks.—You may observe here two sets of symptoms; those directly due to the poisonous effects of the lead, and those due the gout induced by the lead. There are apparently, therefore, two different classes of symptoms due to lead, the direct and the indirect.

The symptoms due directly to lead are especially seen in the anæmia and atrophy, which persons long subject to its influence so markedly show. The atrophy may be due to the same action long continued, of which we make use beneficially in arresting hemorrhage, and to the power which this metal exerts, through the nervous system, in contracting the arterioles, and so stopping the flow of blood. At all events, those who are poisoned by lead soon begin to waste away, and their muscles become smaller and smaller, until they are unable to stand, or raise their hands to their heads. This wasting of the muscles exactly resembles what is seen in the idiopathic progressive muscular atrophy, and, what is very remarkable, is amenable to remedies. The most extreme cases of muscular atrophy of this kind which I have seen have been cured, and more especially by galvanism; the continuous current being the most beneficial, as faradization has very little influence over the wasted muscle. When a patient has muscular atrophy, dropped wrist, or colic, your suspicions of lead poisoning are aroused; but I would have you to remember that persons who are working continuously in lead, or grinding it, often suffer more rapidly and acutely from the metal; though, as no marked symptoms exist, you might easily overlook the cause. An example of the kind was lately under our notice in Mary Ward. A young woman had been working for some months in a lead-factory, when, becoming weaker and weaker, she was obliged to desist. When she came to the hospital she was seen to have a pale, waxy appearance, and was very thin. She complained only of debility. On mentioning her occupation, a blue line was found on the gums. We believed, therefore, that she was suffering from plumbism; we gave her iodide of potassium and nourishing diet, and she slowly regained her strength. Besides the anæmia and muscular atrophy, if the poisonous effects still continue, the nervous centres become affected, and the patient becomes generally paralyzed and demented, or may have convulsions.

As regards the blue line, it is true that it is more marked on an inflamed gum around a decayed tooth, but in this case the line was well marked on a perfect set of teeth. It may be distinguished from the discoloration caused by carbon or other pigments, by the dotted appearance when seen under a lens. It is also said that when the lead circulates afresh in course of elimination by means of the iodide, that the patient may again have colic; this I have not noticed, but I have seen the blue line on the gums becoming much more marked under treatment.

One of the most interesting facts, however, in connection with lead poisoning, is the production of gout, and apparently true gout; since the arthritic inflammation is due to the deposit of urate soda in the joints. I have seen this gouty condition so very often, that I have no hesitation in confirming the statement of Garrod and others, by whom the remarkable connection was first observed; for, in several of my cases, the patients were young, and the ordinary predisposing and exciting causes were not present. I believe the observation is comparatively recent, for the great authority on lead, Tanquerel des Planches, does not refer to it. It is true that he has a chapter on saturnine arthralgia; but he evidently does not refer to the joints, but to the limbs, as his equivalent expression is "douleurs neuralgiques des membres," referring to nerve-symptoms, which, I may tell you, were known to the Greeks as one of the effects of lead.

It is remarkable, too, that not only is genuine gouty inflammation of the joints caused by lead, but of a necessity all the other usual concomitants of gout. Therefore, it is constantly observed that workers in lead not only have chalky joints, but have granular kidney, thickened blood-vessels, and other changes constantly met with in gout, and which are almost synonymous with those of Bright's disease. In the present case the urine was slightly albuminous, and the arteries slightly rigid and tense, suggesting the early condition of the change which I name.

This connection of lead and gout is so remarkable, that we naturally try to discover where it lies. We must first ask ourselves what we mean by gout. We generally mean by it that morbid condition of system which is due to the production of an excess of urate of soda, owing to a malassimilation of food. Now, this may occur under various circumstances from different causes; as, for example, the taking of too much nitrogenous food or wines, which directly favor its production; or, in other cases, from want of exercise, and consequent failure to get rid of the effete material; and, in other cases, to simple atony of the stomach in nervous and weakly subjects. The question, therefore, which we have to ask is, in what way lead-poisoning so affects the digestive and assimilative processes as to favor the production of this salt. This, we believe, is the question to be asked, and not a simple chemical one, because we find attacks of gout caused by disturbances of the nervous system, and relieved by such remedies as quinine, mineral acids, and colchicum; causes and remedies which can only indirectly affect the functions before named, and do not act by simple chemical methods. When we think we can solve difficult questions in pathology and therapeutics by known laws, let us ask ourselves how lead causes gout, and how colchicum cures it.

Poisoning by Colchicum.

The annexed cases are given in the London *Medical Times and Gazette*, December 26th, 1874, by Dr. W. E. Porter:—

On the 4th inst., I was summoned by J. K., a farm laborer in this parish, to see two of his children who were suffering from severe diarrhœa. I sent some ordinary diarrhœa mixture, composed of pulv. cret. aromat. c. op. sp. chlorof. et aquæ, for them, and saw them about three o'clock in the afternoon. The boy had just been taken out of a hot bath; he was in convulsions, and died in less than half an hour. The girl had had convulsions, and was in a state of semi-insensibility; she was quieter than she had been, but she was moribund, and died in about two hours and a half in a convulsive fit. They were seen by my friend Mr. Bull, but there was no scope for treatment beyond the hot-bath, warmth, and, when animation was suspended (in the boy—I was not present when the girl died), artificial respiration, which I persisted in till the heart ceased to beat.

On the day previous the children were both well; they went to school, returned, ate their dinner of potatoes, dripping-pudding, and jam, and went back to school again. At four o'clock, when they returned, the boy felt ill, with coldness, shivering, sickness, and purging. The symptoms increased in severity; there was intense thirst, vomiting, purging, tormina, and tenesmus; and the evacuations were scanty and bloody. About nine, convulsions supervened: they never left him, neither was he ever again sensible; and in twenty-four hours from his seizure he was dead. The girl failed two hours after her brother in a similar manner, and in twenty-four hours she died also. By order of the coroner I made a post-mortem examination of each of the bodies. The appearances in each were identical except in the points stated. I will, therefore, transcribe my notes of the boy only. External appearances: Fairly nourished; thin rather than fat; post-mortem congestion in dependent positions. Mouth pale and clean; lungs congested throughout, but not consolidated; liver pale but healthy; gall-bladder naturally full. Stomach contained about two tablespoonfuls of brownish fluid (diarrhœa mixture?); the mucous membrane was somewhat, but not intensely, inflamed. Small intestines: At about half their length there was an intussusception of about three inches; the lining membrane was congested the whole length, but not very much so; and all they contained was a little discolored mucus of a brownish color that became darker at their lower part; the congestion also increased in its descent; at their end there were three or four seeds like cress-seeds. The large intestine was intensely inflamed its whole length, but most so at its lower part; it contained a little discolored mucus and one seed. Kidneys healthy; bladder full of water. In the girl the inflammation in the bowels and stomach was less intense than in the boy, and the bowels contained five or six lumbrici; her bladder was empty.

Dr. Tidy analyzed some blood from the right side of the heart of each subject, and the contents of their stomachs, etc. Among these contents were some colchicum seeds; he also obtained what appeared to be colchicine from the blood of each; and his opinion was that the children were poisoned by colchicum.

Poisoning by Nitro-Benzin.

A case of this is related by Dr. Bruglocher in the *Intelligénz-blatt*, and translated in the London *Medical Record*, February, 1874:—

It relates to a working soap-boiler, aged forty, who took five or six drachms of nitro-benzin, with about twenty times its bulk of spirit. He took part at 2 a. m., the rest at 7 p. m., on December 16, 1874. Loquacity was followed by drowsiness, which soon merged into complete insensibility. He was found quite unconscious at 7.30 p. m. At 8.30, when brought to the infirmary, all his limbs were paralyzed, as in deep chloroform narcosis; the jaw was clenched tightly, and was opened with great difficulty. The skin was cyanotic; the lips of a violet blue. He foamed at the mouth. His breathing was stertorous and superficial. The pulse was scarcely to be felt. The heart's impulse and sounds were extremely weak. The surface was cold. The pupils were moderately dilated, insensible to light. The urine and fæces were passed involuntarily. He smelt strongly of bitter almonds. Vigorous cold affusion slightly deepened his inspirations, but did not rouse him. Then the stomach-pump was used; the fluid withdrawn smelt strong of bitter almonds. Three-fourths of a pint of water, with ten drops of strong solution of ammonia, were injected; also some strong coffee. At 9.30 the pulse and heart sounds were a little stronger; the mouth more easily opened. At 1 a. m. (17th) he seemed conscious, but his first brief replies to questions were at 5 a. m At 10 a. m. he was still but half conscious, and complained of pains in his pharynx (? from the stomach-pump). The odor of bitter almonds was still evident. In the course of the afternoon he perfectly recovered consciousness. On the 19th he was discharged cured. Bruglocher remarks that nitro-benzin, nitro-benzol, or nitro-benzid, a deriviation of benzol, having the formula $C_{12}H_5NO_4$ [or $C_6H_5NO_2$], is an oily fluid, soluble in alcohol, not in water, smelling like bitter almonds, and much used in perfumery, etc., instead of the latter. It is known in trade as mirbane oil, essence of mirbane, or artificial oil of bitter almonds. Like other nitrites of the carbo-hydrates, nitro-benzin acts immediately upon the blood. All the symptoms can be easily explained by the saturation of the nervous centres with altered nutrient materials. According to W. Starkow's spectrum-analyses (Virchow's *Archiv.*, vol. iii.) the blood of animals poisoned with bi-nitro-benzin shows the bands of hæmatin in an acid solution, as well as those of oxy-hæmoglobin. With nitro-benzin, however, these bands only occur in blood some hours after being taken from the body. Dr. Kreuser, of Stuttgart, gives the following *résumé* of the symptoms in nitro-benzin poisoning. 1. It acts as a direct irritant on the lips, tongue, and œsophagus, without implicating the mucous membrane of the stomach. In the case given above, the dilution with alcohol prevents this. 2. There is a period of latency of some hours, due to very slow absorption, the essence not being soluble in water. In one of Kreuser's cases, the vomit eight hours after taking the poison showed the oily fluid floating on it, and even the excreta had the odor. [In Ewald's cases there were, perhaps about an hour before unconsciousness, slight headache and drowsiness, occurring in half to three-quarters of an hour.] In the case above there was also a period of latency, though his excitement was probably due to the alcohol. 3. There is a remarkably strong smell of bitter almonds. 4. There is trimus and sometimes chronic spasm.

Poisoning by Corrosive Sublimate.

The subjoined case is reported in the Pacific *Medical and Surgical Journal*, February, 1875, by Dr. Q. C. Smith, of Cloverdale, California:—

August 15th, 1874, was called to Mrs. W., who had swallowed, twenty-one days previously, a quantity of an alcoholic solution of corrosive sublimate, of the strength usually prepared to kill vermin. She was sixty-seven years of age, but her general health had been good. Had been a widow many years. Took the poison with suicidal intent. Said she took about a tablespoonful, but the amount is uncertain, as it was drank from a large bottle.

In a short time after the poison was taken, the patient complained of intense pain in the throat and stomach, but concealed the cause of her sufferings for several hours. When it was ascertained that she had taken poison, some member of the family with whom she resided gave her oil and sweet milk freely. Previous to taking this she had violent retchings with great pain, but could not vomit. Soon after the oil and milk were taken, she vomited and passed bloody matter from the bowels; and these symptoms, accompanied with great pain, continued, with greater or less severity, until I was called. She had previously obstinately refused to have a physician called to her relief.

I found her extremely prostrated; pulse 120, very weak and irregular; temperature in axilla 96°; respiration 15, irregular and sighing. Breath had a gangrenous odor, and the frequent small, bloody, alvine discharges emitted an intensely putrid odor, so offensive that the attendants could scarcely remain in the room. She complained of constant pain along the whole length of the alimentary tract; and begged for cold water often to drink, and to be poured on her body and head, and expressed partial temporary relief when her body was sponged with cold water; saying that without the water, she was burning up inside and out. Her skin, even when dry, felt cool to the touch.

No antidotes but oil and milk were given, and they only for a few hours after the poison was taken. Patient refused food for several days afterwards; but had taken a small quantity of liquid food daily for several days before I saw her. I informed her friends that a fatal result was inevitable, and could promise only palliation. Ordered:

℞.	Sub nit. bismuthi,	gr. v.	
	Sulph. morphiæ,	gr. ¼.	M. Ft. pulv.

Sig.—One powder every three hours until relieved.

Ordered as much new milk and nourishing soups as she could take. The mucous membrane of the mouth and pharynx was destroyed, and blood slowly oozed from these surfaces, which were extremely tender, and deglutition and expectoration were difficult and painful.

Dark blood and brick-dust-colored froth almost constantly dribbled from the mouth for several days before her death. Artificial heat was required to keep her feet and limbs warm. August 16th, saw patient at 8 a. m.; slept better last night than since poison had been taken, and was comparatively free from pain, after the medicines of the 15th had time to take effect, though the general condition was little changed since yesterday. Appetite better, and she expressed herself as feeling more natural; yet no real improvement could be observed. Bowels had not moved for twenty-four hours. Mind clear. Pulse 100 and stronger; heat 96; respiration 20, and more regular than yesterday. Prescribed:

℞.	Sub nit. bismuth.,	gr. v.	
	Salicini,	gr. j.	
	Sulph. morphiæ,	gr. ¼.	M. Ft. pulv.

Sig.—One powder every three hours.

August 17th, saw her at 8 A. M.; gradually sinking; rested badly last night and suffered great pain.

Bowels moved several times, discharges emitting the same intensely gangrenous odor. Heat 95 in axilla, yet she still begs for cold water to be applied to her head and body, repeating that she is burning up inside and out. Pulse 80, very weak and irregular, scarcely perceptible at the wrist. Respiration 12, irregular and sighing. Extremities cold, and patient very restless. Mind clear. Suffering great pain. Directed: sulph. morphiæ, gr. ¼, every hour, until she should get easy. Prognosticated an early dissolution. She expired in great agony, at 7 p. m., twenty-three days from date of taking poison.

Poisoning by Aconite.

The following case, with some original features, was reported to the New York Pathological Society by Dr. Blake, and given in the New York *Medical Times*, March 6:—

The case was of a lady who had been poisoned by aconite. She drank about a drachm of the mixture, mixed with equal parts of chloroform. The characteristic symptoms of the poison came on in the course of half a hour, notwithstanding the greater part of the contents of the stomach had been evacuated by the use of the stomach pump within fifteen minutes after the accident. She soon became insensible, and the pulse and respiration ceased. Life was maintained for three hours by the use or a powerful battery, and the employment of oxygen gas in equal parts with common air. At the end of three hours there was a faint perception of the pulse. The prolonged effect of the poison upon the action of the heart was quite remarkable, but an explanation was seemingly offered for such a phenomenon by the condition of the urine. That secretion was found loaded with albumen and contained fragments of casts. This condition of things was thought by several gentlemen to indicate a chronic disease of the kidney and to increase the gravity of the prognosis. An examination of a second specimen of urine presented the same appearances. After this, however, the most careful examination of the secretion failed to discover anything abnormal. The patient recovered, and at the time of reporting the case, it was a week and a day after the poison had been taken.

The interesting question which presented itself had reference to the possibility of the kidney trouble being merely temporary, occasioned by the irritating effects of the poison. The possibility was strengthened by the fact that the skin was profoundly impressed, there being a static congestion of its surface, and the cuticle peeling off on being rubbed.

Poisoning by Homœopathic Solution of Camphor.

Dr. George Johnson, F. R. S., physician to King's College Hospital, writes to the *British Medical Journal*, February 6th, 1875:—

In a paper of mine published in the last volume of the Clinical Society's *Transactions*, there will be found notes of five cases in which symptoms more or less distressing and alarming were caused by homœopathic concentrated solution of camphor. I am indebted for the particulars of the following case to a former pupil, who gives me permission to publish them, but begs me to withhold his name, for the reason that it is a rule of the public service, in which he is engaged, that no medical officer shall publish his cases without special permission, which is not always granted when asked for. I give the case as reported in a letter addressed to me by the medical officer who saw the patient.

"I was called in to see a lady about thirty-five years of age, and found her with a very pale face and weak pulse. She said she had been suffering from a bad cold and feverishness; that she had got up late, and had her dinner at about two o'clock. About an hour after dinner, her sister, who is an experienced nurse, dropped seven drops of homœopathic solution of camphor on a lump of sugar, and gave it to her. Immediately after taking it, she was attacked with a very faint feeling, which compelled her to lie down flat on the hearth-rug, and she nearly lost consciousness.

This lasted about five minutes. When I arrived, her face was very pale, and her pulse was weak. I ordered her to bed, and gave her some aromatic spirit of ammonia and lavender. She was very drowsy after she got to bed, but had no more vertigo or faintness; and in a day or two she got rid of her cold. I am led to believe that this was a case of camphor-poisoning similar to those which you have published, for the following reasons: the attack occurred immediately after taking a dose of camphor; the patient says that she had never before had a similar feeling of faintness; and the vertigo or faint was followed by drowsiness."

There can, I think, be no doubt that the symptoms were a direct result of the camphor. The dose was smaller than in any other case which I have met with in which poisoning has resulted from the incautious use of this dangerous compound. The homœopathic concentrated solution of camphor is a saturated solution of camphor in alcohol, the proportion being an ounce of camphor to an ounce and a quarter of spirit. Seven drops would be an uncertain quantity; but seven measured minims would contain rather more than five and a half grains of camphor. In one of the cases which I have recorded in the *Transactions* of the Clinical Society (vol. vii.), a dose of twenty-five drops, taken by a young lady for a cold, caused violent convulsions and nervous sequelæ which continued for several months. In another case, eight doses of three drops each, taken by a clergyman within forty minutes, caused violent headache, sickness, and inability to work for two months. In a case communicated to the *British Medical Journal* by Dr. Clifford Allbutt (December 6th, 1873), two doses of at the most ten drops each, rendered a robust mountain-guide so giddy that he was unable to proceed on his journey, and he had to be deposited in a cave for safety. Lastly, in two other cases, a teaspoonful dose caused convulsions and coma.

It is time that the public should be warned of the danger which they incur by the use of this poisonous homœopathic concentrated solution of camphor, which is more than seven times the strength of ordinary spirit of camphor. It is notorious that the modern disciples of Hahnemann have gone from the ludicrous extreme of infinitesimal dilution to the dangerous extreme of the greatest possible concentration of active and poisonous drugs.

Prussic Acid in Animal Poisoning.

Dr. A. S. Paine writes in the *Southern Medical Record*, March, 1875:—

If we go to our Materia Medica we shall find there a remedy, a powerful poison, yet an acid, that feebly reddens litmus, that is depressing upon the heart's action; given in an overdose, and you have a sudden shock to the nervo-sanguiferous system, nausea, vomiting, relaxation, collapse, and death. As we find the physiological action of this acid (prussic) and the poison of the snake in its action upon the animal system are identical, it is natural and legitimate to believe their chemical constituents are also similar. Nature has, we know, placed this subtle poison in the peach kernel; it were no more remarkable to find it within the sack beneath the serpent's fangs; and we know one to be an acid, and imagine the other is also. When we bring to support this hypothesis the fact of the great efficiency with which hartshorn relieves these poisonous bites, stings, etc., I can but think that we add an additional link in the chain of argument to support our presumptions. If our arguments are correct, how easy, then, to explain the why and wherefore of our remedy. We can then explain the remedy's efficacy in curing these poisonous bites on well-established chemical laws. For if the poison of the snake is an acid poison, exerting a depressing influence upon the heart's action, we are bound by the laws of chemistry to combat it by a stimulating alkali; and we shall, whilst we avert the "tendency to death" by a stimulant, be able also to neutralize (and render innocuous) an acid poison by an alkali or antacid; for it is known to all that an acid and an alkali render each other inert and harmless by forming what is called a neutral salt. Were we to set all the antidotal powers of the hartshorn out of the question, and throw it back simply upon its stimulating properties, I should still (from its rapidity of action) claim for it the front rank in remedial virtues for the relief of these bites. Whisky, brandy, etc., are remedies certainly possessing no antidotal powers, and simply acting as stimulants; counteracting, although more slowly, the "tendency to death," by forcing and keeping the heart in motion until nature has time to summon her forces and throw the poison from her system. If nature should prove weak, she may succumb (as I can establish she often does) under the depressing influence of the deadly poison, and a valuable life be sacrificed, when the poison would have readily yielded to the exhibition of the hartshorn. My first experiment with the poison was to produce the poisonous effects of it by inoculation. This I tried repeatedly upon cats, dogs, rabbits, and upon domestic fowls. Becoming emboldened by failure upon the lower animals, I vaccinated myself with a small quantity of the poison. In every instance of inoculation there was no perceptible effect produced. I therefore infer that the poison requires to be injected with force into the system. I regret the "hypodermic method" was not used in Virginia at that date. In my second experiment, I gave a large dog two drops of the undiluted poison; in fifteen minutes it made him *"howl."* This dog howled incessantly for six hours, and appeared intoxicated for ten or twelve hours longer. I then mixed the poison and hartshorn in equal proportions and gave it to several small dogs. I thought it mildly *purged* them. I then took about one-third of a drop of the poison, properly mixed with hartshorn, worked it up with the crumb of bread, divided it into twenty pills and took two pills. I felt a glow about my stomach for several hours, and the next day my bowels were moved *gently*. I thought at one time I had succeeded in forming a neutral salt, by mixing certain proportions of the poison with aqua ammonia; but now I am satisfied one of my friends called my attention from the experiment a moment, and slipped a small piece of iodide potassium in my mixture of these two substances. I had progressed thus far in my experiments, when I had hardly time to kill all my snakes before Gen. Blenker's Guards were upon me, and the destruction of my books, papers, MSS., etc., commenced. I have entirely forgotten about the taste and the smell of this poison.

Were I disposed to protract the length of this paper beyond reasonable limits, I could cite many recorded and unrecorded cases which have occurred in my own practice, and in the practice of others, serving to establish this assertion beyond controversy. I have in my own practice seen six cases of snake-bites, and two from spiders, in which hartshorn offered speedy relief, after whisky and brandy had entirely failed to do so.

MATERIA MEDICA AND THERAPEUTICS

I. PHARMACOLOGY.

Benzoate of Lithium.

Mr. E. B. SHUTTLEWORTH says in the *Canadian Pharmaceutical Journ*
February, 1875:—

This salt has been proposed as a remedy for certain disorders of the urinary
gans, and appears to possess advantages over the forms in which lithium has her
tofore been exhibited. The comparative insolubility of the carbonate has alwa
proved a bar to its general employment, and though the citrate is in this respe
much more eligible—only twenty-five parts of water being required for solution—
yet the salt is of an unstable and deliquescent character, and somewhat troublesom
to prepare and dispense. The benzoate is not open to any of these objections, a
has the additional advantage of containing, in combination, an acid which is its
of no inconsiderable repute in the treatment of patients suffering from various for
of urinary deposits.

This salt is not usually to be met with in commerce, but it is not difficult to p
pare. I am not, however, aware of any work of reference which contains a
directions or formula for this purpose; and am, therefore, induced to believe that
few remarks on the subject may prove acceptable.

Benzoate of lithium may be most advantageously prepared from the carbonate:

$$\frac{L_2CO_3}{74} + \frac{2HC_7H_5O_2}{244} = \frac{2LC_7H_5O_2}{256}$$

In a wedgewood dish put one ounce, avoir., of carbonate, mixed with
ounces of water. Heat gently by aid of a spirit lamp, and add gradually, and
small portions, benzoic acid, until effervescence is no longer produced. About t
and a quarter ounces will be required. Evaporate to dryness, stirring consta
and reducing the heat towards the close of the operation. The product may
convenience, be powdered. The yield will be nearly three and a half ounces.

By following this process, a much less quantity of water, and consequently
evaporation, will be needed than if the benzoic acid be dissolved and the carb
added thereto. If, by reason of impurity or discoloration of the benzoic acid,
necessary to filter the solution, three ounces more water may be added before e
ration; and, if required, a little purified animal charcoal may be used. The
zoate may be obtained in crystals by withdrawing the heat, and setting the sol
aside immediately after the benzoic acid is all added.

Watts* says the lithium salt of benzoic acid is uncrystallizable. This is
rect; the benzoate may be crystallized without the slightest difficulty. It tak
form of glistening, pearly scales, or laminæ, somewhat resembles iodide of cad
but less lustrous. The crystals feel soapy or greasy to the touch; have
sweetish, and not disagreeable taste, and are perfectly permanent in the air
solution has an acid reaction.

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* "Dict. of Chem.," p. 552.

I have found the salt to be soluble in three and a half parts of water at 60° F.; in two and a half parts at 212° F.; and in ten parts of cold alcohol, specific gravity 838.

On Bromhydric Acid.

Dr. **DeWitt C. Wade**, says in the *Peninsular Journal of Medicine*, February, 1875:—

I will give the result of my experience with bromhydric acid. I commenced its use September 10, 1874, and by reference to files, it appears in sixty of my prescriptions. According to my observations, it fully represents the action of bromine in the system, and I prescribe it instead of the bromides. Its effect to modify the cerebral action of quinia and morphia is the same as that of bromide of potassium.

Effects may be expected from the acid that are not obtained with the bromides. For instance, it appears to affect the stomach similarly to the other mineral acids—increasing the appetite, aiding digestion, and acting as a general tonic—therefore, having a wide range of applicability. Bromine is known to be a powerful anti-septic, and its hydrogen acid, combined with quinia, cannot be too much extolled in septicæmia. The acid is a grateful refrigerant and sedative, administered with syrup in fevers, with which, among other combinations, may be made the bibromide of mercury as an alterative. In fact, the acid alone is a powerful alterative. It will be seen that bromhydric acid, with these therapeutic properties, ought to establish for itself a position in the Materia Medica that will entitle it to recognition by the whole profession; yet, to-day, it has never been used, to my knowledge, by any physician but myself.

The chemist prepares the acid by decomposition and distillation, which, taking into account the expense, and its liability to spoil by long keeping, would render the presence of a good article in every druggist's prescription case impracticable. I have therefore devised the following formula for its preparation: One equivalent of bromide of potassium, two equivalents of tartaric acid, and only sufficient water to dissolve each. Mix the solution and let it stand in ice water twelve hours; decant and add water to make a fluid ounce for each eighty grains of bromine. This is the reaction: $\mathrm{K\,Br} + {}_2\mp + \mathrm{H\,O} = \mathrm{K}_2\mp + \mathrm{H\,Br} + \mathrm{H\,O}$. The bitartrate of potassium (cream of tartar) that is precipitated is slightly soluble, but is not an impurity that in any way affects its therapeutic properties. Thus prepared, bromhydric acid represents ten grains of bromine to each fluid drachm, is of a pale straw color, intensely acid, but not caustic, resembling, in this respect, the other dilute mineral acids, dissolves the salts of the alkaloids readily, and may be administered in a great variety of combinations. Medium dose, half a drachm, well diluted.

Rhamnus Frangula as a Substitute for Castor Oil.

Dr. **J. C. Ogilvie Will**, Assistant Surgeon to the Aberdeen Royal Infirmary, writes to the *Medical Times and Gazette*, January 30, 1875:—

It is, I think, generally admitted that castor oil is as efficient and safe, as pleasant in its action, and as frequently admissible as any of the many laxatives contained in the Pharmacopœia. Were there not, unfortunately, some decided objections to its use, it would be needless to bring forward any other drug as a substitute for it; but that these objections do exist is a matter of everyday experience; and if any other more pleasant form of medicine, possessing similar properties as regards action could be used, I believe that it would be looked upon as a decided boon both by the patient and physician. I am, therefore, anxious to bring before the medical profession a drug which seems to me—and I have experimented with it freely—to possess the advantages of castor oil without being counterbalanced by its disadvantages.

The advantages of castor oil as a mild purgative when compared with others used for a like purpose are so well known that it is almost unnecessary to recapitulate them; but, for the sake of comparison, it may be as well to call them to mind, and they may be summed up in the following few words: Certainty and rapidity of action; little griping and no constitutional disturbance; the production of thin fæculent, not watery, stools; and general applicability.

The main disadvantage is its disgusting flavor; also the nausea which this frequently induces, and the disagreeable eructations which follow its ingestion, disguise it in whatever way one can; even when given enclosed in capsules, the eructations, after the rupture of the gelatine film takes place, cause loathing and disgust.

The medicine to which I now desire to direct attention is *Rhamnus frangula.* To prevent those who are not acquainted with *R. frangula* from falling into an error which I have already witnessed, let me state that the shrub I speak of is not the common buckhorn or *Rhamnus catharticus,* but the black alder or *R. frangula,* and that the former differs as widely from the latter in the effects it produces as does croton oil from castor oil—the one being an active cathartic, causing nausea, dryness of the throat, thirst and tormina; the other a mild laxative, its action being unaccompanied by griping or other disturbing symptoms.

The part of *Rhamnus frangula* used is the bark, and the preparation I have always prescribed has been a fluid extract, each fluid drachm of which contains an equivalent of one drachm of the bark. This extract is a dark brown, thickish fluid, with a rather sweetish and far from disagreeable taste. The dose of course varies according to the effect desired, the age, and the condition of the patient; but I have proved from experience that the quantity suggested by the makers of the extract—viz., one to two drachms—is, as a rule, too small for an adult. For a child one drachm is sufficient, but for an adult a dose of from two and a half—that is, an average dessertspoonful—to five drachms is necessary, and I generally order the following:

℞. Extracti rhamnifrangulæ liquidi, ʒv.
Aquam, ad. ℥j. M.

Sig. The half to be taken in a wineglassful of cold water, and should the bowels not move in four hours the remainder to be given; or the first dose at night, and the second in the morning should no motion have taken place.

The effects are much akin to those I have mentioned as the advantages of castor oil, but there is no nausea, there are no eructations, and there is no griping. With regard to the last symptom, though it is, as I have already stated, but slight in the case of castor oil, it is hardly ever present here in even the least degree, only one patient of the many to whom I have given it complaining of it at all, and in her case the bowels had not been opened for four days, and she had only a very little uneasiness. The stools are not generally loose, and never watery; it usually acts only once, but in two of my cases three motions followed five drachms. It seems to have, in addition, as first stated by Mr. Giles, tonic and aromatic qualities, by which the muscular action of the bowels is slightly stimulated; and it is probably to this that its usefulness in habitual constipation is to be attributed. I have now prescribed it in many different forms of disease, and in all it has answered well.

II. GENERAL AND SPECIAL THERAPEUTICS.

On the General Laws of the Action of Medicines.

In the *British Medical Journal*, February 20, 1875, Dr. James Ross says:—

At the meeting of the British Medical Association this year, at Norwich, I proposed, in a paper "On the Action of Mercury," two laws of the action of medicines. The first is that, other things being equal, the more massive the atom of the element the more definite and local will be the action of its compounds; and the second that, other things being equal, the greater the molecular mobility of an agent, the more general and diffused will be its action. These laws frequently coincide, yet the one is not the converse of the other. Mercury, for instance, is an element with massive atoms, hence the action of its compound should be local and specific; but it possesses great molecular mobility, since it volatilizes at ordinary temperatures, hence it should exercise a wide and diffused action upon an organism. Reference to observed facts shows that, although the action of mercurial compounds is specific, yet it is of wide extent. In the light of these laws, the experiments of my friend and old fellow-student, Dr. McKendrick, of Edinburgh, in association with Mr. Dewar, upon the chinoline and pyridine series of bases, possess the utmost significance. These compounds could, at one time, only be obtained by distilling natural alkaloids, such as strychnine and quinine, with caustic potash; but chemists now form them from coal-tar.

Mr. Dewar, who is the chemist, forms the compound, and submits it to Dr. McKendrick, who determines its physiological action. Chinoline, which has a composition of $C^{9} H^{7} N$, and boiling point of 238°, has an action somewhat similar to that of chloral; but, as we ascend in the scale, the action upon the sensory part of the encephalon is becoming less marked, and that upon the motor centres more manifest, until the higher members of the series ($C^{16} H^{21} N$, with boiling point above 300°) produce death by convulsions and subsequent paralysis, not unlike the action of strychnine. As the molecule of the agents is becoming more massive, the action is becoming more special and local; the higher part of the brain being left unaffected at first, then the lower ganglia, until at last we have almost the pure action on the cord itself.

It would be interesting and instructive to make comparative experiments upon the action of the alcohols, to see if they conform to a similar law. The little we know of the action of different alcohols gives indications that such is the case.

The action of methyl is more diffusible than that of ethyl-alcohol. Nothing much is known respecting the action of propyl-alcohol; but Scotchmen know that when a man gets drunk upon new raw whiskey, which contains a considerable percentage of amyl-alcohol, the effect differs considerably from that of drunkenness from more or less pure ethyl-alcohol. There is less blunting of the intellectual faculties, and a more profound disturbance of the lower emotions, such as rage and jealousy, and I think I am right in saying that a poisonous quantity of such a compound is apt to produce convulsions. It is very probable that the difference which Dr. Magnan of Paris has shown to exist between the action of absinthe and that of ordinary spirits, is one of this kind, and depending upon the presence in absinthe of an alcohol with a higher chemical composition than that of ethyl-alcohol. A comparison of the action of the various alcohols suggests to the mind the operation of another law. The monatomic saturated alcohols are poisons, the diatomic alcohols or glycols are less poisonous, the triatomic alcohols or glycerines have a still less effect, and when we come to the tetratomic, pentatomic, and hexatomic alcohols, we obtain substances which are either inert or are foods. This may be an example of the law that, other things being equal, the more heterogeneous a substance is to the body, the greater will be its effect. The hexatomic alcohols or glucocides are homogeneous with the body, and, therefore, will act as foods; while the monatomic alcohols are both physically and chemically more heterogeneous to the body than any of the intermediate alcohols. The reason why the hexatomic alcohols act as foods, while the alcohols with saturated radicals act as poisons, is probably that the former are less stable than the latter, and consequently undergo with readiness transformations within the body, whereby force of some kind is evolved. A more or less parallel fact may be noticed with respect to inorganic substances. The elements which are classed as irritants are, as a rule, either univalent or bivalent; while the substances called tonics are generally either trivalent or some higher degree of atomicity. This law has a sufficient number of exceptions to show that the irritant or tonic properties must depend upon other conditions than the atomicity of the agents. Another law is that, other things being equal, the greater the molecular mobility of an agent, the sooner it gains entrance into the body through the absorbing surfaces, and the sooner it is eliminated. This law explains why nitrous oxide gas acts more rapidly, but more evanescently, than ether, and ether than chloroform, and chloroform than chloral. Closely related to, although not the converse of this law, is the one, that the compounds of the elements with massive atoms are relatively long in gaining entrance into the circulation through the absorbing surfaces, and are correspondingly long in being eliminated; and when the agents form, like the metallic salts, stable compounds with albumen, the length of time before they are eliminated is much increased. Another law is that, other things being equal, in binary compounds both elements are represented in the effect produced, but the action of the heavier atomed element will predominate. Take, for instance, chloride of potassium, bromide of potassium, and iodide of potassium. In the first, the action of both elements is represented, but that of the potassium predominates; in the second, the action of the bromine predominates; but when an animal is poisoned by bromide of potassium, the action of a potash salt upon the heart is apparent; while, in the third, the action of the iodine largely predominates. The action of this law may be traced through compounds of a higher grade than the binary. When, however, an agent produces a very energetic effect, such as hydrocyanic acid, it makes its influence predominate even in composition with the more massive atomed elements. We can promise a rich harvest to any one who will have the patience to differentiate by experiment the physiological action of the various chemical groups of organic compounds, and who will then contrast with each other the actions of the groups themselves; such as that of the hydro-carbons, alcohols, ethers, acids, aldehydes, ketones, amines, and amides, and passing through the remarkable bases which I have already mentioned—the chinoline and pyridine series—to the natural alkaloids.

These laws belong to a general science of pharmacology. They are as true of the action of medicines upon all organisms, especially all animal organisms, as they are of their action upon man. They are, however, too remote from practice to be of much immediate use. More specific laws must be discovered before a great effect is produced upon practice; and, to do this, we must proceed in a systematic manner with the arrangement of our facts. We must first of all possess a descriptive pharmacology, which must be freed as much as possible from all hypothesis. I think myself that, if we were to arrange all the facts known respecting the action of medicines upon different organisms in tables similar to the plan adopted by Mr. Herbert Spencer for arranging sociological facts, a great deal might be done in a few years to reduce the actions of medicines to a complete systematic form, which would afford a good scientific basis for the treatment of disease by drugs.

The Action of Vesicants.

The following are the conclusions reached by Dr. Cantieri, of Palermo, as given in the London *Medical Record*, January 13, 1875:—

The physician who judges it necessary to employ cantharides as a rubefacient, must attend to the following conditions:—

1. To keep the vesicant applied for as short a time as possible; since its prolonged contact with the skin may lead to the absorption of a large quantity of the active principle of the cantharides, and to its consequent effects on the organism. In some cases, a large blister has risen some hours after the removal of the vesicant; the action is then destructive.

2. Not to apply it to nervous, slender, and delicate individuals, in order to avoid the perverting effect of cantharidine and the debilitating effect of pain.

3. Not to apply it to patients suffering from fever arising from infection of any kind, lest, besides adding a toxic element to that which already exists, grave new changes be produced.

4. Not to apply it to persons suffering from chronic heart-disease or other maladies attended with œdema or anæmia, and with great tendency to inflammation of the skin.

Putting aside these cases, I think that vesication with cantharides may be useful in medicine as a rubefacient in simple venous hyperæmia or stasis, such as arise from insolation, from the temporary abuse of alcoholic liquors, from heart-disorders, and other affections of this kind. But, although I would not absolutely oppose the use of cantharides, I would prefer sinapisms, or simple or sinapised pediluvia, frictions of the skin, and other kinds of irritants which are not attended with danger.

Finally, the following conclusions arise from the facts which I have studied and analyzed:

1. Vesicants do not sustain or excite the action of the heart and vessels, but rather weaken and depress it.

2. The stimulant action on the heart seems to be better explained by the action of remedies administered internally, such as wine, ether, etc., than by that of the vesicants.

3. Vesication with cantharides is absolutely contraindicated in all cases of dropsy arising from active or passive hyperæmia of the kidneys; because the drug, exercising its irritant and perverting action on these secretory organs, augments the afflux of blood and thereby aggravates the morbid condition. Such treatment is to be absolutely prohibited in dropsies attending Bright's disease or cardiac disorders, especially if the presence of albumen in the urine intimate the existence of renal stasis.

4. Substitutive treatment cannot be carried out, since, beside the mischief arising from the extensive local action of a vesicant, there are the evils which may be produced from the absorption of the cantharides.

5. Vesication may be used as a rubefacient under the conditions already described.

6. In applying rubefacient treatment, it is best to have recourse to other irritants, such as sinapisms, pediluvia, etc.

7. In general, vesicants cannot be applied to the treatment of acute diseases without injury to the patient. They cannot be used in typhoid and in other infective fevers, in which an adynamic and ataxic state prevails, inasmuch as, in consequence of the absorption of the active principles of the cantharides, the blood-corpuscles are changed, the contractile power of the heart is diminished, and one infection is added to another.

The Antagonism of Medicines.

A committee to report on this topic was appointed by the British Medical Association, and the general conclusions at which they arrived are given in the *Journal* of the Association, January 23d, 1875. They are as follows:—

I. *As to the Antagonism between Strychnia and Chloral Hydrate.*

In this investigation, one hundred and fourteen experiments were performed.

1. After a fatal dose of strychnia, life may be saved by bringing the animal under the influence of chloral hydrate.

2. Chloral hydrate is more likely to save life after a fatal dose of strychnia, than strychnia is to save life after a fatal dose of chloral hydrate.

3. After a dose of strychnia has produced severe tetanic convulsions, these convulsions may be much reduced both in force and in frequency by the use of chloral hydrate, and consequently much suffering saved.

4. The extent of physiological antagonism between the two substances is so far limited, that (1) a very large fatal dose of strychnia may kill before the chloral hydrate has had time to act; or (2) the dose of chloral hydrate must be so large in such a case to antagonize the fatal dose of strychnia, that there is danger of death from the effects of the chloral hydrate.

5. Chloral hydrate mitigates the effects of a fatal dose of strychnia by depressing the excess of reflex activity excited by that substance; while strychnia may mitigate the effects of a fatal dose of chloral hydrate by rousing the activity of the spinal cord, but it does not appear to be capable of removing the coma produced by the action of chloral hydrate on the brain.

II. *As to the Antagonism between Sulphate of Atropia and Calabar Bean.*

In this investigation, one hundred and fourteen experiments were performed.

1. Sulphate of atropia antagonizes to a slight extent the fatal action of extract of Calabar bean.

2. The area of antagonism is more limited than even Dr. Fraser has indicated in his paper on the subject.

III. *As to the Antagonism between Hydrate of Chloral and Calabar Bean.*

In this investigation, thirty-one experiments were performed.

1. Hydrate of chloral modifies to a great extent the action of a fatal dose of extract of Calabar bean, mitigating symptoms and prolonging life.

2. Hydrate of chloral in some cases saves life from a fatal dose of extract of Calabar bean.

3. If hydrate of chloral be given before extract of Calabar bean, so that the animal is deeply under the influence of hydrate of chloral before it receives the extract of Calabar bean, the symptoms produced by the latter are much modified, and life is saved from the effects of what would otherwise be a fatal dose.

4. Chloral hydrate is of little service as an antagonist to extract of Calabar bean,

if given some time after the latter. If the symptoms of the action of Calabar bean be in full operation, it will not save life, however it may modify symptoms.

5. The antagonism is limited.—

a. By the amount of dose of the extract of Calabar bean—more than a minimum fatal dose of extract of Calabar bean destroying life, notwithstanding the administration of chloral hydrate.

b. By the interval of time between the administration of the two substances. There is a great probability of saving life in those instances in which the animal is under the influence of chloral hydrate before the subcutaneous injection of the extract of Calabar bean; there is less probability when both substances are given simultaneously; there is still less if the chloral hydrate be given from five to eight minutes after the extract of Calabar bean; and no chance at all if the chloral hydrate be given eight minutes after a fatal dose of extract of Calabar bean.

6. Even in cases in which a fatal result follows the action of the two substances, the physiological effects of extract of Calabar bean are considerably modified by those of hydrate of chloral.

IV. *As to the Antagonism between Hydrochlorate and Meconate of Morphia and Calabar Bean.*

In this investigation, forty experiments were performed.

Hydrochlorate and meconate of morphia in no way antagonize extract of Calabar bean.

V. *As to the Antagonism between Sulphate of Atropia and Meconate of Morphia.*

In this investigation, eighty-one experiments were performed on rabbits and dogs.

A. *In Rabbits:*

1. Sulphate of atropia is physiologically antagonistic to meconate of morphia within a limited area.

2. Meconate of morphia does not act beneficially after a large dose of sulphate of atropia, for in these cases the tendency to death is greater than if a larger dose of either substance had been given alone.

3. Meconate of morphia is not specifically antagonistic to the action of sulphate of atropia on the vaso-inhibitory nerves of the heart.

4. The beneficial action of sulphate of atropia in cases of poisoning by meconate of morphia is probably atrributable to the action which the former substance possesses of contracting the blood-vessels, and thus diminishing the tendency to cerebral and spinal congestion produced by salts of morphia.

B. *In Dogs:*

Sulphate of atropia modifies the physiological action of meconate of morphia, and may even save life after a fatal dose of the latter. The limit, however, is so narrow as to be of no practical service.

VI. *As to the Antagonism between Tea, Coffee, Theine, Caffeine, Guaranine, on the one hand, and Meconate of Morphia on the other.*

In this investigation, one hundred and seventeen experiments were performed.

1 Theine is antagonistic to meconate of morphia, inasmuch as the action of the one substance modifies that of the other, and may even save life from a fatal dose of either substance.

2. Meconate of morphia delayed the appearance of the convulsions characteristic of the action of theine; but, on the other hand, theine, if given in large doses, did not affect in a marked degree the action of meconate of morphia, because symptoms of poisoning by theine were soon manifested.

3. Further experiments on cats showed that (*a*) while a cat may recover from the effects of a dose of 1¾ grains of meconate of morphia given alone, it will not recover from the effects of a dose of 2 grains, even although the effects of the latter dose are modified by those following the introduction of 4 or 5 grains of theine ; (*b*) that in three cases the animals recovered from the effects of 1⅞ grains of meconate of morphia and 4 to 5 grains of theine, while they died when the same dose of meconate of morphia was administered eight days afterwards; (*c*) that, when the dose of theine was increased beyond five grains, the animals invariably died, apparently from the effects of theine.

4. Experiments on rabbits, as to the antagonism between meconate of morphia and theine, were found to be unsatisfactory as regards the purposes of this inquiry, because both drugs produce epileptiform convulsions in these animals.

5. The results obtained in investigating the action of caffeine and guaranine as antagonists to meconate of morphia were similar to those observed with reference to theine.

6. Experiments were made on dogs to ascertain the effects of strong infusions of tea and decoctions of coffee as antagonists to meconate of morphia. These were unsatisfactory, chiefly because the tea or coffee was usually vomited so soon as to prevent the possibility of the exercise of any physiological antagonism. At the same time, it was observed in several instances that the administration of tea or coffee so excited the animals as to prevent them from falling into stupor or coma after a dose of meconate of morphia, which would have produced this effect had the tea or coffee not been given.

VII. *As to the Antagonism between Extract of Calabar Bean and Strychnine.*

In this investigation, thirty experiments were performed.

Although the symptoms produced by either substance were modified considerably by the action of the other, there was no instance of recovery from a fatal dose.

VIII. *As to the Antagonism between Bromal Hydrate and Atropia.*

In this investigation, thirty-six experiments were performed.

1. There is a distinct physiological antagonism between bromal hydrate and atropine.

2. After a fatal dose of bromal hydrate, the introduction of atropia arrests excessive secretion from the salivary glands and mucous surfaces of the lungs, and thus obviates the tendency to death from asphyxia caused by the accumulation of fluids in the air-passages. Atropia also causes contraction of the blood-vessels, and thus antagonizes the action of bromal hydrate, which causes dilatation of these vessels by paralysis of the sympathetic nerve.

3. While atropia may save life after a fatal dose of bromal hydrate, the converse apparently does not hold good, as we have never succeeded in saving life after a fatal dose of atropia by the subsequent injection of bromal hydrate.

Therapeutic Use of Guarana.

In the Pacific *Medical and Surgical Journal,* January, 1875, Dr. J. C. Van Wyck, gives this case:—

Mrs. —— had been for nearly eight years subject to headache and was a confirmed dyspeptic. For several years past the slightest exposure to cold or dampness would affect the mucous membrane of the stomach, and a headache would invariably ensue. So intense was the suffering concentrating in one or the other eye, that a subcutaneous injection of morphia became a necessity for temporary relief. Again, either a day preceding or subsequent to the catamenial period, a violent headache was sure to occur, despite every means suggested by numerous physicians to avert it. Without much faith on my part, and with far less on that of my patient, I commenced the administration of Grimault's powders of Paullinia or Guarana, each of which contains thirty-three grains. At the time of taking the first powder there was considerable gastric irritability, and it was thrown up in about half an hour. The severity of the attack was, however, somewhat mitigated. Two days after, experiencing all the premonitories of another attack, she took and retained a powder which not only afforded entire relief, but produced a feeling of vitality and force long a stranger to her. Towards night, the head again threatening, she took a second powder, and after a pleasant night's sleep awoke, feeling better than for months past.

Nearly three months have elapsed since the first dose was taken, during which period there has occurred but *one* severe headache, and in that instance the administration of the remedy was postponed until the pain had become quite intense, and it then failed to arrest the progress of the attack.

The Value of Distensile Enemata.

This therapeutic means is illustrated in the Atlanta *Medical and Surgical Journal* January, 1875, by Dr. B. C. SMITH:—

The first case occurred in a young man, while under treatment (with small doses of calomel and dovers powder) for acute dysentery. After using water enemas in a moderate way, until I thought the time had arrived for dividing responsibility, I communicated the patient's condition to Dr. Clarke, stating that I had not used the syringe *heroically*. He promptly advised its use to "the extent of overcoming the difficulty." I accordingly pumped water into the bowels until the patient could not be persuaded to bear any more; then let him rest a little, without permitting any to escape, and continued pumping until he exclaimed, "Doctor, you are bursting my guts!" I then gave another short period of rest, occasionally throwing in a little more water, as the bowels seemed to become capable of containing it. This state of distension was kept up about a quarter of an hour, when the water was allowed to escape. In about two hours thereafter the patient was able to defecate, upon which he expressed his gratification by saying, "That's worth half a dollar!"

The second case occurred in a man of middle age, while in good health. On the day previous to the accident, he had eaten peaches, for the first time during the season. The fruit was of excellent quality, and he experienced no difficulty from it until the following day, when he had an untimely movement of the bowels, followed by symptoms of intussusception. In two days time the difficulty had become serious, and I treated him as I did the first case—repeating the injections several times from midnight until daybreak. The last one I gave was pushed until he was in agony. After a few moments of rest, I asked him if he could bear any more. He replied, "if it was the only means of saving his life, he would try." The vomiting previously had only been of a bilious character, but at this time he vomited matters having a decidedly fecal odor. Being alarmed at this feature, I called counsel, but nothing more was required than about three hours rest, when his bowels acted naturally.

I have subsequently tried the same means in one case of *strangulated inguinal hernia*. No relief being obtained, the case was treated in the usual manner recommended in the books, except that no operation was performed, that resort being considered unnecessary on consultation, and it was postponed until it was found that a fatal termination was imminent, when the treatment was narrowed down to the hypodermic use of morphine. The post mortem revealed extensive adhesions between the hernial sac, omentum and bowel. One of the physicians who examined the condition remarked: "Mott himself could not have operated successfully."

The patient had never suspected the real character of the tumor, and even denied its existence on my first visit. On my second visit eight hours afterward, I repeated the inquiry with much earnestness, when he admitted that he had a "swelled kernel, that always inflamed when he took cold, but that he knew that it had nothing to do with his spell of colic." Like the majority of patients, he supposed that the portion of his ailments which he himself understood was not material to the physician.

As an illustration of the manner in which distension of the bowel relieves intussusception, I will mention that a circle of irritated hemorrhoidal tumors, in a state of protrusion and congestion, will be readily drawn in by distending the colon with water. This is not proposed as a plan for removing the tumors, however, as they return with the water.

Therapeutic Uses of Veratrum Viride.

Dr. P. O. M. **Edson** gave some examples of the use of this drug in a paper referred to in the Boston *Medical and Surgical Journal*, January 14th, 1875:—

The first case was one of croup, in which the symptoms were severe, with high fever and all the indications of a grave case, and one in which exudation was to be expected; but the symptoms abated soon after the exhibition of the viratrum viride. No membrane was thrown off, and there was no muco-purulent expectoration. It was believed that the case ended by resolution before exudation had time to take place, a result due, probably, to the prompt action of the drug. In this case he gave a two-ounce mixture containing half a drachm of Norwood's tincture; and of this he ordered a teaspoonful every two hours. The age of the patient was four and a half years.

The second case was that of a stout, plethoric young man, with clonic spasms; his face was injected, his eyes were bright, and his carotids throbbing. He had been similarly affected before, and on former occasions the convulsions had continued for some time after the use of emetics and other treatment. As a result of these former seizures he had been left weak and depressed for several days afterwards. But on this occasion Dr. Edson gave him at once half a drachm of the tincture, with the effect of reducing the pulse in one hour from one hundred to seventy. In two hours he was perfectly rational and went to sleep; and in two days he was well.

The third case was one of acute mania from the excessive use of alcoholic stimulants. There was furious delirium. Fifteen drops of the tincture of veratrum were given, to be repeated in an hour; but the patient slept and there was no further trouble.

Dr. Edson then spoke of the good effect of the veratrum viride in meningitis of children; it is safer than other depressants, as its effect can easily be checked by the exhibition of opium and stimulants, thus differing from aconite and antimony. It is a sedative, reducing the action of the heart and causing general relaxation, and its best results are obtained from small doses often repeated.

In answer to questions, Dr. Edson said that he had never given the drug to a child under two and a half years old. In one case he gave on one occasion two drops every two hours, for twelve hours, with no bad effect. One drop would be a dose for a child one year old. The effect should be carefully watched, the patient being visited often while the drug is being administered. Veratrum is indicated in cases of rapid pulse due to too great power of the heart, but not in the rapid pulse of debility.

The Uses of Hydrate of Chloral.

The following extract exhibits the value placed on this recent drug by Dr. A. S. PAYNE, in the *Southern Medical Record*, December 18, 1874:—

The beneficial effects of this remedy in delirium tremens is *simply wonderful.* No prostration appears to follow the stimulating effects of chloral, as it does in all other drugs; nor is there the same "craving" for alcoholic stimulants after chloral that there always is after the administration of opiates and the other usual stimulants. Another remarkable difference between hydrate chloral and all other drugs is, that it is somewhat beneficial in any sized dose, although given greatly under its normal dose. In other words, it makes a patient feel cheerful, comfortable, although the dose given is not potent enough to put him to sleep. With opiates and common stimulants this is never the case; you must give your patient enough to produce the desired effect, the specific effect of the drug, or you do your patient positive harm rather than benefit him by their exhibition; you excite, rather than compose him. A fifteen-grain dose of chloral will benefit your patient somewhat, when at the same time it will require sixty grains to enable him to sleep. It seems to act as a sort of "pabulum" for the nerves. I have repeatedly given chloral in as small a dose as fifteen grains, and in as large a dose as one hundred grains, without ever seeing a single unpleasant symptom therefrom. I prescribed chloral the past summer in two cases of "*coup de soleil,*" with the happiest effect. Cold water to the surface of the body and head, and chloral internally, I think are the *reliable* remedies in sun-stroke. It does not arrest or check any of Nature's secretions.

It is rather a moderate promoter of all the secretions, for I have found in cases where there is a paucity of high-colored urine, it sensibly increases the flow, and gives manifest tone and power to the bladder. When the bowels are overloaded, yet constipated, it acts as a mild, safe aperient. I have no doubt that in diarrhœas and dysenteries caused by atomy and irritability of the bowels, chloral hydrate would prove itself almost a "specific." It is a moderate promoter of digestion, and rarely fails to increase the appetite. In many cases of dyspepsia, tincture of lupulin, combined with small doses of chloral, prove themselves of signal value. Especially is this the case in the dyspepsias of the old debauché. Food taken after the administration of chloral does not oppress the stomach as it does after the administration of the common stimulants and appetizers. As its only sensible effect is to rouse, *brace* the nervous system, it interferes unfavorably with no other remedy, but rather assists in their therapeutic effect upon the system. I have repeatedly prescribed the hydrate in protracted cases of labor, from rigidity of the perineal muscles or os uteri, with as beneficial results as I ever gained from venesection along with the regular, persistent use of the antimonii et potassæ tartras. Seeing the apparent dread of some able practitioners of medicine to administer chloral, induced me to experiment with this drug quite extensively in my own person. I have often taken as little as five grains, and as often one hundred grains, and always with a pleasant effect—a remarkably pleasant effect.

The Combination of Chloral, Morphia and Atropia.

At a meeting of the New York Neurological Society, a paper on the "Combined Administration, chiefly hypodermically, of Chloral, Morphia, and Atropia," was read by Prof. Roberts Bartholow, M. D., of Cincinnati, a corresponding member, an abstract of which appears in the New York *Medical Journal*, January, 1875:—

Dr. Bartholow began by stating the desirableness of further knowledge of the reactions which ensue when remedies affecting the nervous system are conjointly administered. He had to offer to the Society a condensed summary of the results obtained from the simultaneous administration of chloral, atropia, and morphia.

Chloral differs from chloroform, when injected subcutaneously, in the more decided systemic effects, and the less local impression on the sentient nerves of the former. As regards the systemic effects, the action of chloral is very much the same when administered hypodermically as by the stomach. The chief danger is an arrest of the respiratory movements.

Chloral does not exert any chemical action on atropia when the two are held in solution together—for dilatation of the pupil of a cat takes place when the combined solution is instilled into the eye. Dilatation of the pupil also takes place when they are administered hypodermically together.

An apparent antagonism is observed, as regards their action on the heart, when the solutions of chloral and atropia are placed in contact with the heart of a frog, when in position in the chest after division of the medulla, or when the heart is removed. The action of the heart is further found to continue much longer when a lethal dose of chloral is administered together with atropia. In rabbits the same result is produced by the conjoined administration of the two agents.

Atropia is found to prolong the chloral narcosis several hours in rabbits, and diminishes the sensibility to pain.

In man the excitant action of atropia hinders the occurrence of the chloral narcosis, but rather deepens the sopor, when it at last supervenes. The effects of atropia last much longer, and are apparently in no way prevented by chloral.

Morphia deepens in every way the effects of chloral. The author of the paper found, in the course of some experiments on himself, that many of the unpleasant effects of morphia are modified, as regards the wakefulness caused by the latter, but are not modified as regards the subsequent nausea, vomiting, headache, vertigo, and constipation. When the two agents are administered conjointly, a much less quantity of chloral is necessary in order to produce sleep.

These agents act much more favorably when administered simultaneously. Chloral auses sleep, morphia relieves pain, atropia prevents or lessens the depression in the espiration and cardiac movements caused by the other two, while it contributes to heir cerebral effects.

These physiological studies are confirmed by the therapeutical results. The comination of chloral, morphia, and atropia, is adapted to those cases of *insomnia* aused by pain, or in which chloral or morphia alone merely increases the cerebral xcitement—as in hypochondria, puerperal mania, etc. This combination is also ndicated in cases of fatty and irritable heart. When *pain* is to be relieved, chloral s not so serviceable as the combination with morphia and atropia. The local dministration—that is, the insertion of the medicament at the site of pain—is ore effective than the merely sytemic impression. This is especially the case in tic-douloureux, sciatica, and coccydynia, which are much more effectively treated by injections made in the neighborhood of nerves, the seat of pain. The combination of a local irritant and benumbing agent with a systemic anodyne is more curative than either used singly.

In cases of *muscular spasm*, the author of the paper had obtained excellent results from the combined use of chloral, morphia, and atropia, and he especially called attention to the efficacy of these agents in the *cramps* of *cholera*. Many cases of *spasmodic asthma*, *hay-fever*, etc., have been benefited by their conjoint administration.

III. ANÆSTHETICS.

The use of Sulphuric Ether as an Anæsthetic.

Dr. **Thomas Keith**, Surgeon for Ovarian Disease to the Royal Infirmary, Edinburgh, says in the *British Medical Journal*, January 30, 1875:

I ought ere now to have communicated to the *Journal* my experience of sulphuric ether. I have given it in ovariotomy and other prolonged operations, or whenever it was necessary in feeble patients to give an anæsthetic, ever since the beginning of 1867, when I doubt if any one used it in this country except myself.

In giving an account in the *Lancet*, August 1870, of my second series of fifty cases of ovariotomy, the following remarks were made:

"In Case LII., the excessive chloroform vomiting during the operation, and for some time after it, so prostrated the patient, that her chance of recovery was lost. In the early cases, I have frequently had to deplore the injurious effects of chloroform vomiting in ovariotomy, and so evident was the mischief occasioned by it in this unfortunate case, that I have since then entirely abandoned the use of this agent in ovariotomy and other severe and tedious operations, and now use instead anhydrous sulphuric ether, made from methylated alcohol, administered through Dr. Richardson's apparatus. The oftener ether has been given, the more I like it. How chloroform so quickly superseded it is a marvel. The anæsthesia of ether, though at first slower, is extremely steady and quiet. There is infinitely less vomiting than with chloroform, and, instead of the pallid face and feeble pulse of chloroform, the patient, after a long operation, is put to bed with a flushed face and a great surface-circulation. In cases of non-adherent tumor, vomiting is, I fancy, of little consequence; but where there has been extensive adhesion, and when oozing may be set up by it after the wound is closed, vomiting can be no trifle, and may turn the scale. Sulphuric ether has now been used—at first with a small proportion of chloroform—in fifty-three cases of ovariotomy (of which forty-six recovered), and something has been gained from the use of it. I would put in a word for the old anæsthetic. Chloroform certainly saves the surgeon five or ten minutes of time, and a little trouble. Had it never been heard of, I doubt if humanity would have suffered from the want of it."

This opinion was looked upon here as heretical, and, being adverse to chloroform, was attributed to personal motives; yet, after four years, I have little more to add than simply to endorse it.

The case above referred to was at the time published in the *Edinburgh Medical Journal*, and I felt so certain that chloroform vomiting killed the patient, that in the case which came next I took to sulphuric ether in a sort of despair. It [illegible] new to me [illegible] 1847–48 we all looked upon ether as a good practical [illegible]. When I began again to use it, a small proportion of chloroform was [illegible], for the best English ethers were found to be very impure, and it was rare to [illegible] with a specific gravity under ·750. At length Dr. [illegible] [illegible] a perfectly dry ether made from methylated spirit. It is manufactured [illegible] conscientious chemists Messrs. Macfarlane. Its specific gravity is [illegible]. It costs me three shillings a pound of twenty-four fluid ounces, and it answers [illegible] for such anaesthesia. For the last six or seven years nothing but [illegible] has been used, except twice, when [illegible] was given, and [illegible] a few months ago, when operating at Newcastle, when chloroform was used. The apparatus employed has been the mask of Dr. [illegible]'s apparatus, with [illegible] fixed in the bottom. It might easily be improved, but it answers its purpose well enough, though there is great waste with it. For many years the ether [illegible] administered by my brother Dr. Keith; of late it has been given by Dr. [illegible], [illegible] will at an early day give his observations upon it. There has been [illegible] in bringing patients under its influence. It is given freely and [illegible] of air [illegible] with it. We have not observed the excitement which is said to [illegible] administration of ether. It is always taken by the patient in bed, and no one is allowed to be in the room but the administrator and nurse.

[illegible] the great advantage of ether over chloroform in such operations as ovariotomy [illegible] is the almost complete absence of after-vomiting. Vomiting [illegible] of [illegible] consequence. With chloroform, after-vomiting was the rule, and [illegible] and first night of an operation the nurse required to be always at hand [illegible] basin for the vomiting. With ether after-vomiting is [illegible] the exception, [illegible] is never severe or continued; while some patients sleep on, and often [illegible] three hours without moving after being placed in bed.

My confidence in sulphuric ether as the best practical anaesthetic we yet have [illegible] than diminish. Its low specific gravity must make it less dangerous than [illegible] others. It is not perfect, but it answers my purpose better than any other [illegible] my patients from the misery of after-vomiting and [illegible] of losing their lives in certain cases of bad adhesion from [illegible] the sickness after the abdomen is closed. Whether [illegible] of operations, I cannot tell; but I am inclined to think [illegible] times. This much I can say, that ether has now been [illegible] thirty-five cases of ovariotomy, and in two cases of [illegible] for fibro-cystic tumour. In every case the anaesthesia was [illegible] the operations were very tedious, and of the last [illegible] recovered.

In the beginning of 1848, Sir James Simpson [illegible] an elaborate statistical paper showing that [illegible] the limbs, especially of the thigh, performed [illegible] than before ether was known. The results [illegible] tions were obtained by circulars sent out [illegible] attention of those interested in the [illegible] ons in hospitals. Either chloroform has [illegible] ons, or, in the early days of anaesthesia from [illegible] later period. It may be also well to note that [illegible] ars afterwards, the words ether, [illegible] instance displaced by the words anæsthetic, anæsthetized, anæsthesia. Perhaps the results of operations were then considered too good for ether, which latterly came to be given the merit of being only an improvement on the mandragora and other rubbish of the middle ages.

Resuscitation in Chloroform Narcosis.

The annexed case is reported in the *Canada Lancet*, March 1875, by Dr. C. W. Covernton:—

On the evening of the 19th of January I was called to visit Willie Hooker, a lad aged nine years, who, while riding on his hand-sled behind a passing omnibus, lost his grasp of the projecting step, and before he could get out of the way was run over by a sleigh a short distance in the rear. Beyond a lacerated crescentic wound on the inner border of the gastrocnemius muscle, from the horse's foot, he received no other injury than a severe bruise of the fleshy parts. As there was great tenderness of the whole leg, I ordered warm water dressings, and deferred until the next morning bringing the gaping edges of the wound together by sutures. The following day, assisted by my son, who although not a medical student has proved on several occasions to be reliable, I administered a drachm of chloroform, and after an interval of several minutes finding that no evidences of his being brought under the influence were apparent, I poured another drachm on the sponge; this, after a short time, seemed to have produced the requisite degree of anæsthesia, but on handling the leg preparatory to putting in the first suture, he screamed and struggled violently, so that before complete insensibility was produced I had to administer a third drachm. Very shortly after the limbs became relaxed and complete anæsthesia established. The sponge was then given to a Mrs. Garland, a neighbor who had kindly taken the mother's place—with instructions to keep it a short distance from the nostrils. Four sutures were quickly put in and the edges drawn together, a wet compress placed over the wound and a bandage lightly applied. On asking for a pin to fasten the terminal end of the bandage, Mrs. G. in handing one to me dropped the sponge, and to my horror I discovered there was no evidence of breathing, and no pulse at the temple or wrist. The boy was lying on a sofa, so it was only the work of an instant to place his head on the floor, and direct my son to hold his legs in the perpendicular position. An elder brother sitting by a window was directed to throw it open; cold water at hand was dashed on the face, and fortunately without difficulty I was enabled to grasp and keep protruded the tongue with the thumb and finger of left hand; with my right I made pressure alternately on the thorax and abdomen, whilst Mrs. G. quietly and intelligently elevated and depressed the arms, settling to the work as coolly as if she had been a member of the staff of the Royal Humane Society for years, neither by word nor sign giving evidence of trepidation. On such alarming emergencies it is difficult rightly to estimate the lapse of time, but certainly the most wretched quarter of an hour I ever experienced appeared to elapse before there was the least appearance of animation. My son's estimate was over twenty minutes. The first attempt at inspiration was of the feeblest, gradually succeeded by more vigorous ones; vomiting then ensued. In attempting to slightly turn and elevate the head so as to guard against the vomited matter that filled his mouth regurgitating into the trachæa, I lost my hold of the tongue, and the jaws instantly closed like a vice; all attempts at prying them open failed, and again I feared the case would prove hopeless. To my inexpressible relief another faint attempt at vomiting occurred with complete relaxation of the jaws; the tongue was instantly again grasped, and held firm until the breathing was completely established, pulse perceptible, and slight coloration of lips and face returned. For another five minutes he was kept inverted, the nostrils cleared of vomited matter, and friction of the chest with a dry towel employed; he was then replaced on the sofa, made reclining at an acute angle by placing one end on a chair, and in a few minutes we became jubilant. The boy opened his eyes, moved his head to one side, and fell into a calm sleep; this continued for more than an hour, when he awoke conscious. There is little doubt in my mind that if artificial respiration in the horizontal position had been solely relied on, our efforts would have proved futile.

On Nitric Oxide.

Dr. Burnell writes to the *American Journal of Dental Science*, January, 1875:—

The preparation of the gas is very simple, with proper apparatus and proper caution; I would always use a double valve inhaler, attached by a hose of large caliber, directly to the reservoir of gas, so that a free large column may pass directly to the patient. In this way the respiration is free, whereas if the column of gas is small the respiration is more or less labored. An inhaler, with a mouth-piece in the centre to pass between the teeth, leaves the mouth open for the operation when anæsthesia is complete.

Anæsthesia is supposed to be produced with it, by supplying the system with carbon more rapidly than it can be eliminated. The patient passes quickly into a perfect state of anæsthesia, which is always plainly indicated. The condition is of shorter duration than that produced by chloroform or ether. The functions of the body are slightly exalted, and respiration fully supported. After the lapse of from two to five minutes, the patient is in as perfectly a normal condition as before inhaling it. It is generally believed that any substance that produces immunity from pain is followed by a corresponding penalty. This I believe is not the case with nitrous oxide, but we all know it to be more or less so when chloroform or ether is inhaled. We can only judge of the merits of each by actual experiment upon a great variety of temperaments and conditions, considering also the component parts of each and their general effects. It has been asserted that the gas affects only the nerves of motion, and that the patient suffers all the pain without the ability to move. In some cases this may be so. It is equally true that the reverse is more generally the case, the sensory nerves being affected to a greater extent than the motor nerves.

Ether Flasks.

The *British Medical Journal*, May 1, 1875, calls attention to a useful invention by a British surgeon. It says:—

Staff-Surgeon Dr. James Lilburne has invented a very useful method of closing bottles containing ether, chloroform, and other volatile fluids or tinctures, in hot climates. The bottles are made with a narrow neck, corked, and the glass of the neck drawn over the cork and closed with the blow-pipe. Evaporation is impossible. The invention is very simple and practical, and his ether-flasks, after being tried and found successful, are, we understand, to be adopted at foreign stations.

A Danger of Ether at Night.

Dr. **Wm. Hunt** publishes in the *Philadelphia Medical Times* a very important caution as to the use of this agent at night—viz., that the lights should always be *above* the operator and etherizer, and the neighbourhood of a low grate or open stove should be carefully avoided. The vapor of ether is very heavy, and falls rapidly, as any one can test by pouring a little of the liquid into a saucer and watching it roll and fall over the sides. One of the most exciting and seriously threatening scenes that Dr. H. has ever been engaged in happened, he says, in this way:—"A man required amputation of the arm (which was crushed by an engine) high up. There was, fortunately, just room for the tourniquet. The residents of the hospital, together with Drs. Agnew and Herbert Norris, were assisting. The latter administered the ether from a large sponge, and placed the bottle on a chair at his side. I had just removed the dangling fragments of the limb, when an assistant brought a candle close to the stump, and almost directly under the sponge. Instantly we were in a blaze. Dr. Norris involuntarily started back, and, in doing so, knocked over the chair with the large ether bottle, which broke! Its contents were quickly spread, and the whole ring of the amphitheatre was on fire. A nurse lifted the patient from the table and placed him on the floor. Fortunately, the tourniquet held. Others sprang into the side wards and seized blankets, coats, and everything at hand, and we soon stamped the fire out, but were all more or less singed. The walls of the amphitheatre bore evidence for a long time, in the scorched wood and blistered paint, of the danger. The exposed parts of the patient were superficially burned, but he never knew what had happened. He was placed on the table, and the operation was finished. The thorough anæsthesia here was fortunate for all. Had the fire taken place earlier, terror and excitement from ether combined would have made the man uncontrollable, and a fearful panic might have occurred in the hospital. As it was, no alarm was spread beyond the room."

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Night operations with ether should, therefore, only be those of absolute necessity, and with the cautions enjoined there need be no danger. Chloroform, not being inflammable, has a great advantage over ether in this respect; but Dr. H. is afraid of it.

GENERAL MEDICINE.

I. HISTORY OF MEDICINE.

Antiquity of Anæsthetics.

In a paper read before the College of Physicians of Dublin, reported in the *Medical Press and Circular*, January 6th, in proof of the antiquity of the use of anæsthetics in surgical practice in Scotland, Dr. **More Madden** quoted the following passage from Jocelyn's "Life of Kentigern, or St. Mungo, Patron of Glasgow," a work written in the twelfth century, between the years 1175 and 1199:—

Constat nihilominus nobis multos, sumpto potu oblivionis quem physici lethargion vocant obdormire; et in membris incisionem, et aliquotiens adustionem et in vitalibus abrasionem perpessos, minime sensisse, et post somni excussionem, quæ erga sese actilata fuerant ignorasse.

This life, which is edited from a unique MS. in the British Museum, Cott. Vit. c. viii., 12th century, was written by the celebrated Jocelyn, of Furness, the biographer of St. Patrick, and is dedicated to another Jocelyn, Bishop of Glasgow.

Dr. More Madden then endeavored to show that the essential component of this *potu oblivionis quem physici lethargion vocant* was the juice of the *Mandragora officinalis.* In support of this view he cited a remarkable passage from a Celtic Materia Medica of the twelfth century, evidently taken from Pliny's account of this long disused acro-narcotic poison, which concludes with the words: "*Bibitur et contra serpentes et ante sectiones punctionesque ne sentiatur; ab hœc satis est aliquis somnum odore quæsisse.*" Thus, if surgical anæsthesia was known in Scotland, and if the means by which it was produced and the writings in which it was treated of were known to the ancient Irish physicians at the same time, both of which are proved in this paper, we may, he observed, reasonably conclude that the same practice was probably known to our ancestors in the healing art in this country.

The anæsthetic properties of mandragora are also spoken of by another writer, repeatedly quoted by the author of the ancient Irish manuscript referred to by Dr. More Madden—namely, by Isiodorus, who says: "Cujus cortex vino mixtus, ad bibendum iis datur quorum corpus propter curam secandum est, ut soporati dolorem non sentiant" (C. 333). The late Dr. Snow (in his work, "On Chloroform and other Anæsthetics," p. 2, London, 1858) quotes Apuleius, who speaks thus of mandragora: "Further, if any one is to have a limb mutilated, burnt, or sawn, he may drink half-an-ounce with wine, and whilst he sleeps the member may be cut off without any pain or sense." ("De Herbarum Virtutibus," c. 131.) Dr. More Madden, however, observes that in the earliest version of the "Herbarium" of Apuleius with which he is acquainted—namely, the Saxon copy, published by direction of the late Master of the Rolls, and the original transcript of which was probably made about the year 1050—the passage cited by Dr. Snow does not occur.

Mesmerism, which has long been used as an anæsthetic agent of great power in

India, where Dr. Esdaile, some time Presidency Surgeon at Calcutta, performed no less than 261 operations under its influence, was introduced with less success into England as a novelty about thirty years ago by Dr. Eliotson. It seems to have been utterly forgotten, however, that animal magnetism, or mesmerism, had of old been a well-known practice in Ireland, and has been fully described by Dr. R. R. Madden in a paper published in the *Dublin Quarterly Medical Journal* for August, 1847; and in Dr. R. R. Madden's paper a remarkable account may be found of a ceremony practiced by the pagan Irish as far back as the year 50 A. D., which appears to have been almost identical with that now employed by animal magnetists for the purpose of throwing their patients into the mesmeric trance.

In Middleton's tragedy of "Women Beware of Women," written in the middle of the seventeenth century, we find the following mention of surgical anæsthesia as a familiar idea:—

HIPPOLITO. "She shall never know till it be acted;
And when she wakes to honor then she'll thank me for it.
I'll imitate the pities of old surgeons,
To this lost limb; who, ere they show their art,
Cast one asleep, then cut the diseased part."*

Sprengel, in his "History of Medicine," published long before surgical anæsthesia was a recognized fact, in speaking of operations, quoted Théodoric, who advised the administration of opium and hyoscyamus before operation.

The Cautery in India.

In some observations on the native plans of practice in Central India, an English surgeon says in the *Medical Times and Gazette*, January 30th, 1875:—

A very favorite method of treating almost every kind of ill to which flesh is heir is the actual cautery, or, as the vernacular has it, the "dhag." There is scarcely any ailment or injury which I have not seen thus treated. If a person's spleen be enlarged, the "dhag" is applied. If any one suffers from bad lumbago, the burning iron is applied to his back. Does sciatica afflict, the malady is exorcised by scars. When a person obstinately refuses to place his hand hanging from a dislocated humerus on the vertex of his head, he is as often as not "dhagged" all over the shoulder. Quite recently a man with strangulated inguinal hernia was brought to me with recent "dhags" all over the scrotal swelling. Similarly it is an exception when any case of tumor appears, whether cancerous, cystic, fatty, or any other variety, over which the hot iron has *not* been applied. Sometimes the scars are made in lines, crossways, like a gridiron; more usually they are made in spots, varying in size from a two-anna bit to that of a rupee, and in number from one to (as I once counted, over a fatty tumor of the back) fifty. Neither is this application of the "dhag" a specialty of the hereditary hakeem or baid. It is in many parts of the country, especially in the Bheel tracts, performed by a Bhel woman, who probably neither makes, nor professes to make, any other attempt to be considered a disciple of Æsculapius. The instrument used is generally a piece of iron flattened at the end, and it is applied to the skin just at the time when the very first flush of redness from fire heat is apparent. Not unfrequently troublesome ulcerations result from these "dhags"—a consequence which, in the case of the late Maharajah of Joudpoor, "dhagged" by the hakeems against the advice of the European medical consultants, materially weakened the patient and hastened the fatal termination of the malady. It is curious that the same people who would shrink with horror from the smallest lancet of the surgeon, will pass through sufferings connected with the cautery for which in a better cause they would almost deserve the name of martyrs. I have known a person prefer the "dhag" to the trocar for the relief of hydrocele!

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* Middleton, "Women Beware of Women," Act IV., Scene 1. London, 1657. See also *Notes and Queries*, 2d series, vol. i. (May, 1856), p. 351; vol. vi., p. 470; and vol. vii., p. 127.

Changes in Therapeutics.

In the Hunterian Oration delivered in London last February, Dr. F. Le Gros Clark said:—

In contrasting the therapeutics of the past and present generation, much has been said and written respecting the change in type of disease and the physical constitution of our race, to explain—without condemning our predecessors, or too ostentatiously parading our own enlightened views—the results obtained in such conflicting ways and by such different means. This may be so; but have we sufficiently taken into account the liberty which is now accorded to Nature to work in her own way, without being thwarted and coerced at every turn? Decisive interference is sometimes essential in surgery, but Nature will often resent hasty violence which anticipates her slow and gradual method of relief; and abiding success will in many cases wait on patient watchfulness that is denied in the issue to officious meddling, which is more seductive, and therefore more mischievous, because of the temporary success which may attend it.

The modern practice of medicine, as well as surgery, abounds with proofs of this salutary influence. I may instance the copious dilution of soluble medicines. We have long witnessed the beneficial effects of the natural medicinal waters of our own island and of many continental baths and springs, but we have been tardy in recognizing the value of prescribing our medicines in the same diluted form. The adoption of this practice—so far as it is adopted—is no doubt more consonant with our present advanced physiological knowledge and acquaintance with the physical law which governs the absorption of fluids, and their transmission to the circulation; but it is chiefly due, I think, to a more careful observation of Nature's gentle methods, for we thence have learned that the required elements will be thus incorporated by assimilation, which would be passed on by the irritated bowel, or refused osmosis, if introduced in a more concentrated form. The combination of some of the less soluble medicines with food is to be commended for the same reasons, and in many instances with equal profit in their action.

In surgery I may venture to speak with more confidence, for its greatest conservative triumphs have been suggested and matured by the study of those indications which natural curative efforts afford. Pre-eminently may the principle of rest, in the treatment of many surgical diseases and injuries, be cited in illustration of this remark. I mean absolute and continuous repose, such as Nature exhausts her resources to obtain, though often ineffectually, on account of the indocility of her patients, or the meddlesome interference of the nurse, and sometimes of the doctor. Abscess, joint-disease, aneurism, necrosis, hemorrhage, ulcers, and injuries of all sorts, exemplify the value of rest. I remember, many years since, being impressed with a remark of Sir Benjamin Brodie in a consultation on the treatment of a diseased joint. In reply to some suggestion or inquiry he thrice repeated emphatically the monosyllable "rest;" and in truth it is only in exceptional cases that active measures, as they are termed, are justifiable in this class of diseases.

II. STATISTICAL MEDICINE.

Mortality of Native Americans Compared with Foreigners.

Dr. E. M. Snow, in his registration Report of Providence, gives some interesting statistics on this subject:—

The difference in mortality among the young children according to parentage is very strikingly exhibited in a table which shows the mortality at successive age-periods, not only in absolute numbers, but in the percentage which decedents of each age bear to the total mortality of their class. Thus, in one hundred native decedents, 30.39 are under five years of age; while in one hundred deaths of foreign decedents we find 43.05 under five years. In the smaller and most critical period of from one to two years of age, the disparity is much greater, being 5.22 to 11.55. At adult age we find both classes furnishing about the same proportion of the mortality. At the fifty-to-sixty period, however, we find the earlier relations of the classes reversed; for in a hundred native deaths we have 9.05, while a hundred other decedents furnish only 4.09 in that age-period. Both ratio and absolute numbers of deaths continue with singularly little alteration through the two succeeding decennial periods, the exact figures being 9.16 to 4.55, and 9.52 to 4.90. In the next decade, 80–90, the proportions are 4.64 and 1.98 for native and foreign classes respectively. So that we have more than thirty-three decedents over fifty years old, of native birth, in each hundred; while one hundred decedents of the foreign class have only sixteen above that age.

III. STATE MEDICINE.

The Prevention of River Pollution.

Professor Frankland, of London, in a lecture delivered February 19, 1875, gave an account of the results of the Royal Commission on the Pollution of Rivers:—

The Commission had first of all to decide whether prevention or artificial treatment is necessary; for the opinion is seriously held—of course by interested parties—that a process of natural or spontaneous purification goes on, and that after a course of some miles a river will be found to have "cleaned itself," and to have lost the greater part of its impurities. By means of carefully conducted experiments, taking specimens of a river water at two distant parts, and at intervals of time carefully calculated from the rate of flow, Professor Frankland proved that such self-purification is so insignificant that it must be disregarded for practical purposes, even in rivers well filled with vegetation. A certain amount of suspended solids will settle, but little oxidation of organic impurities occurs. Artificial treatment must therefore be resorted to. Professor Frankland then described the various methods which have been proposed or adopted for purifying waste products, sewage, and river water, and illustrated this part of his discourse with specimens of waters before and after treatment, as well as by experiment. The chemist, in considering the various means of purifying water, regards its impurities under three heads—organic matter in suspension, inorganic matter in suspension, and organic matter in solution. One of the first processes introduced for restoring the purity of waters was that of precipitation. Thus when milk of lime is added to a hard water, not only a precipitation of a certain amount of earth is produced, but the heavy carbonate carries down with it some of the suspended impurities, and—what is remarkable even a certain amount of the organic matter which is in solution. The A B C process and some others are, in part at least, based upon the same principle. The method of precipitation is fairly successful, but laborious, and so expensive—chiefly on account of the worthless nature of the products—that it probably will not pay the working. The next process of purification is a more natural one—the process of irrigation and subsidence. In this method advantage is taken of the principle of the former, the particles of impurity being freely exposed to "points of contact," in the shape, not of a precipitate, but of an enormously extended surface of earth. The results obtained by this method are extremely satisfactory; and the products are valuable, as the appearance of the sewage farms abundantly testifies. The grave objection to it is the large amount of space which it demands for its perfect working. To remove this objection, and to obtain a result equally or even more satisfactory in other respects, a third method has been introduced, and promises to be speedily in extensive application. This is the system of intermittent filtration, where the soil or earth is alternately exposed to the water which has to be purified and to the atmosphere. It would appear that the particles of earth possess the property, which is familiar to chemists in spongy platinum, of "condensing" oxygen on their surface, so that they serve not only as "points of contact" for the particles in suspension in the fluid, but as seats of oxidation or destruction of the organic matter in solution.

Common Sanitary Evils.

In an address published in the *Sanitarian*, May, 1875, Mr. A. C. Bayles says:—

I have thus far dealt only with the means which I consider most effective for preventing the gaseous emanations from the sewers from finding their way into our dwellings. This is but a small part of the subject, and many matters of equal importance connected with the drainage of houses can be, at most, only hinted at during the few minutes which remain to me. I have lately had my attention called to a number of cases in which drain pipes have been laid in cellars by merely smearing the joints with mortar or glaziers' putty. With the expansion and contraction of the pipes, this worked loose, the dampness to which it was constantly exposed crumbled it, the joints were left open, and with every dash of foul water through the pipe a portion leaked out and saturated the soil. I have known of one case in which the joints of the pipe were merely set one within the other, without even an attempt to make them water-tight. From one cause or another, all remediable, the cellars of very many houses in this city are flooded with sewage a good part of the time. I have known instances in which hot air furnaces have been supplied with cold air drawn from cellars so foul that they were useless for everything but coal storage, and they were not fit for that. We can readily imagine the effect which the foul, damp air from such a hole, sucked up, heated and poured out at the registers, would have upon the health of those compelled to breathe it. In nearly all the down town districts, especially those neglected neighborhoods along our river fronts, crowded with well-filled tenements, a rise in the tide, a heavy rain or general thaw, leaks in the sewers, and other causes lead to an overflow of foul-smelling liquid from defective drain pipes. What are these cellars flooded with, and what is the effect of such flooding upon the public health? During the cold weather water is cut off from a great number of houses. The past unusually severe winter has kept the plumbers exceptionally busy, but the freezing of service pipes is something that happens every year, and in hundreds, and perhaps thousands, of buildings throughout the city, water-closets accumulate filth over empty traps which are not and cannot be flushed for weeks at a time. I know of one building in an important business street, in which there are probably sixty offices. Each office is occupied by at least five people, taking the average of the whole building. On the lower floor there are nine water-closets in almost constant use, and through these not a drop of water has passed for about ten weeks. In dwellings this neglect of decency, to say nothing of sanitary precautions, would not have been carried to the same extent as in the case described, but during the past season a very large proportion of the residents of this city were for weeks at a time without water enough to insure cleanliness of person, much less for uses too often neglected even when water is abundant. In many houses occupied by people in comfortable circumstances, especially those built in French flats, tanks to which no attention is given from one year's end to another, are the reservoirs from which is drawn all the water used for drinking and cooking. I climbed into one of these tanks a few days ago, and found it coated on the bottom with a bed of soft, oozy, brown mud to the depth of nearly two inches. It would have been deeper had the mouth of the service pipe been raised higher above the bottom. There was no means of clearing out this tank except by partially emptying it through the service pipe, removing in pails what remained, and sponging out the deposit. The tank was a wooden box lined with sheet zinc, and I found it coated on the inside with a whitish scale of considerable thickness, composed of the oxide and poisonous salts of zinc, which readily form upon that metal when subjected to the action of Croton water. This is no unusual case. Whole blocks of houses in the upper part of the city are supplied with water drawn from just such tanks, and if the dwellers in flats could be induced to look into them occasionally with a light, they would be instructed, if not entertained. I call attention to these facts merely as showing the extent and importance of the subject which I have attempted to discuss so imperfectly, and which I commend to your consideration. As I have always said, it is, I believe, one concerning which the public are profoundly ignorant, and if this association, through its intelligent membership, comprising so many eminent scientific sanitarians and experienced sanitary inspectors, can do anything to arouse the public to the necessity of reforming existing evils in the methods of house drainage commonly employed, it will perform a great and important service in the interest of public health.

On Noxious and Offensive Trades.

A valuable lecture on this subject, by Dr. LETHEBY, is given in the London *Medical Times and Gazette*, February 20, which we epitomize as follows:—

Looking at the individual peculiarities of these nuisances, it is evident they may be conveniently classified under three heads, viz.:—1. Those which are caused by the escape of noxious or offensive effluvia, as gases and vapors. 2. Those which are produced by smoke, dust, or other mechanical impurities. 3. Those which are occasioned by the discharge of noxious or offensive matters into gutters, ditches, or watercourses. Dr. Letheby proposed to limit attention to the first of these nuisances—namely, those which are caused by the escape of noxious and offensive effluvia, as sulphuretted hydrogen, empyreumatic or other organic vapors, and the gaseous acids. Foremost of those operations which cause offense by the escape of sulphuretted hydrogen into the atmosphere is the manufacture of sulphate of ammonia from gas liquor. This liquor is produced in great quantity at the gasworks,—varying from ten to forty gallons per ton of coals, according to the strength of the liquor and the perfection of the processes for removing ammonia from gas. The precautions, therefore, to be taken in the conduct of this business are—1. The transference and storage of the gas liquor in air-tight tanks guarded with boxes of hydrated oxide of iron. 2. The distillation of the liquor in a steady and continuous manner in air-tight stills by means of high-pressure steam. 3. The saturation of the ammonia in close vessels, and the complete expulsion of sulphuretted hydrogen from the saturated solution before it is drawn off for evaporation. 4. The condensation of moisture from the sulphuretted hydrogen evolved from the saturator; and the conveyance of the cold dry gas to the furnace fire, where it is to be completely burnt. 5. The treatment of the exhausted liquor from the still with cream of lime, so as to recover the residual ammonia by a second distillation; or, if the process be in operation at a gas works, the use of the residual ammonia as an absorbent in the purification of gas. 6 The observance of the greatest care as regards the tightness of all parts of the apparatus. Another operation which demands care in its management is distillation of coal tar for the various products derivable from it. There are two kinds of tar derivable from coal, according as the temperature of distillation is high or low, and according to the richness of the coal in hydrocarbon. One is ordinary coal tar, and the other is the tar from which paraffine oils are obtained. The tar produced from common coals at a high temperature (common coal tar) is always heavier than water (sp. gr. 1120 to 1150); it dries freely in the air by oxidation; it contains hydrocarbons with such an excess of carbon that they cannot be burnt in a common lamp; it is almost entirely destroyed by strong oil of vitriol; it contains much sulphur, and its percentage composition is about 86 carbon, 7 hydrogen, 6.5 oxygen, and 0.5 sulphur. Whereas the tar produced from cannel coal at a low temperature is lighter than water (sp. gr. about 900); it will not oxidate, or dry in the air; it contains hydrocarbons of the paraffine series which are comparatively poor in carbon, and which can be burnt in a lamp; it is not much acted on by oil of vitriol; it contains little or no sulphur, and its percentage composition is about 84 carbon, 12 hydrogen, and 4 oxygen. The main points, therefore, to be observed in the conduct of works of this description are—1. The transport and storage of the coal tar in air-tight tanks or vessels guarded with boxes containing hydrated oxide of iron. 2. The proper construction of the primary receiver of the products of distillation, so that it may freely deliver them by special pipes to their respective receivers, and at the same time convey offensive non-condensible products to the scrubbers and purifiers. 3. The passage of the offensive non-condensible gases and vapours to a scrubber charged with a douche of cold water, from thence to an oxide of iron purifier, and thence to a tall chimney-shaft. 4. The proper cooling of the pitch in air-tight vessels before it is allowed to reach the external atmosphere, and the ventilation of these vessels through the scrubber and purifier before mentioned. 5. The use of a fan, or other exhausting power, so as to draw all the noxious gases and vapours from the stills, the pipes, the receiver, and the pitch den, into and through the scrubber and purifier before mentioned. The production of paraffine oil from cannel coal, and the distillation of the crude tar, as well as the distillation of petroleum and Rangoon oil, require like precautions, though not to the same extent, as the products are not nearly so offensive as in the case of coal-tar products. Dead oil, or creasote, is largely employed for preserving timber; but unless there is great carelessness in the management of the operations they are not offensive. The melting of pitch and asphalte for the production of materials suited for the making of asphalte pavements, etc., is in the generality of cases a very offensive operation. All these operations should be conducted in closed boilers, which should be ventilated by a fan through a scrubber prior to its entrance into the chimney-shaft. The clarification of oil for burning and other purposes is generally effected by means of sulphuric acid, which is well stirred into it. Cotton oil is refined by means of a solution of caustic soda; and this also, when subsequently heated by steam, is offensive. The remedy in each case is the carrying on of the operations in closed vessels, ventilated to the furnace fire. The distillation of oils and fats for the production of stearic, margaric, palmic, oleic, and other fatty acids is effected by means of sulphuric acid and super-heated steam. In these operations sulphurous acid and acroleine are evolved, so as to be offensive to the neighborhood, unless they are conveyed from air-tight apparatus into the furnance fire. Oil-boiling for making varnishes, linoleum, leather cloth, printers' ink, and black japan is a very disagreeable operation, and requires to be conducted in boilers from which the fumes pass into the furnace fire to be destroyed. Varnish-making and resin-distilling are also offensive operations, and necessitate the destruction of the acrid organic vapors by carrying them to the furnace fire, or to fires placed at the outlet of hoods which cover the pans. In cases where inflammable spirit is used to a large extent in certain manufactures, as in making American cloth, the difficulty of dealing with the vapor is exceedingly great, as it is dangerous to pass it through a furnace fire for fear of explosions. In one factory the quantity of petroleum spirit used daily in the thinning of the oil for the colors is not less than 140 gallons—all of which is daily evaporated from the cloth in the drying-room, which is gradually raised to a temperatue of 130° Fahr., at which it is kept for six hours during the drying of the colors. In these cases it is best to ventilate the room freely by special shafts communicating with the chimney at a point where the vapors are not likely to be fired. Fat melting, bone-boiling, tripe-dressing, and the cooking of sheep's heads, bullocks' cheeks, livers, and feet, as well as the boiling of shell-fish, lobsters and crabs, are all offensive operations, and require to be conducted in closed coppers ventilated by special flues, which carry the organic vapors into the fires beneath them. The rest of the paper was devoted to a consideration of the processes for manufacturing "size and glue," "manure," "animal charcoal," "roasting of coffee," etc., "Esparto grass for paper-making," "sugar for beer," "brick-burning," and nuisances occasioned by the escape of acid fumes, bleaching operations, etc.

The Adulteration of Bread.

At a scientific meeting in London, reported in the *Medical Times and Gazette*, February 13, 1875, Mr. J. A. WANKLYN read a paper "On the Detection of Alum in Bread." Mr. Wanklyn said that the usual quantity of alum employed in aluming bread was between twenty to thirty grains per 4-lb. loaf. Calculated in percentage this is a very small figure, twenty-eight grains of alum in the 4-lb. loaf being 0.1 per cent. of alum, yielding only 0.024 per cent. of phosphate of alumina. The difficulty of detecting this small proportion of phosphate of alumina in bread is still further increased by there being about ten times its weight of phosphate of lime and magnesia along with it. There are two processes for effecting the separation of the phosphate of alumina from the other phosphates—first, by dissolving it in caustic alkali, and leaving the rest insoluble; secondly, by dissolving the phosphate of lime in acetic acid, and leaving the phosphate of alumina insoluble. The first of these processes (Kuhlmann's) can be only a qualitative and not a quantitative process; since the phosphate of lime, being a jelly, retains obstinately some of the phosphate of alumina. The other process, which has been known for many years, but only recently applied by Dr. Dupré to the detection of alum in bread, presents no difficulty of this kind. Mr. Wanklyn said that he had simplified this process, and verified it by numerous experiments on bread alumed to a known degree in his laboratory, and he was now enabled to recommend the process as the best-known method for the detection of alum in bread. He then proceeded to give the practical details of the process, as follows:—A sample of bread, weighing 100 grammes, is burnt in a large platinum dish, heated by means of a Bunsen burner. The resulting ash is boiled with three cubic centimetres of fuming hydrochloric acid diluted with twenty or thirty cubic centimeters of water. The liquid is then filtered, and the filtrate, which contains the phosphates, is mixed with five cubic centimetres of strong ammonia, causing a precipitate of phosphates. Finally, twenty cubic centimetres of strong acetic acid is added, and the phosphates of lime and magnesia are dissolved, whilst the phosphate of alumina is left insoluble. On filtration, the phosphate of alumina is left on the filter-paper, and may be ignited and weighed. The trace of iron which accompanies the alumina is measured by a process of titration, and its weight is allowed for.

Dr. Dupré said that he approved of the method suggested by Mr. Wanklyn, as a modification of the process he had been working. He considered that the process was simplified by the improvement, and would be worked in a more satisfactory manner.

Mr. Allen said that he had made many experiments in order to test the accuracy of the various processes for detecting alum in bread, and he had found the process described in Hart's "Manual of Health" very defective. He preferred Dr. Dupré's process to the others.

Dr. Stevenson said that the method of separating the phosphates by means of acetic acid was introduced twenty years ago by the late Mr. Nesbitt.

Wr. Wigner said that a certain quantity of alum could be detected in pure unalumed bread, but that experiments have shown that the maximum amount of alum obtainable was eight grains in the 4-lb. loaf.

IV. EPIDEMIOLOGY.

The Epidemics of 1874.

The President of the London Epidemiological Society, Dr. W. R. E. Smart, C. B., in his address, November, 1874, referring to the course of the greater epidemic diseases through the last year, said that cholera had disappeared everywhere in Europe except in Munich, where it hybernated with two climaxes in the first week of February and the first week of April, not being finally extinct until the first week of May. In March, 1874, it reappeared in Prussian Silesia, which had become frequently infected by it; this epidemic remaining there up to July, when, it may be hoped, the epidemic of 1865 took its final departure from Europe, completing the third cycle or pandemic of Asiatic cholera in nine years: the first from 1830 to 1837, having lasted seven; and the second, from 1847 to 1861, fourteen years. The last two cycles were more than doubled in duration by recrudescences that had arisen in Europe itself in districts where it had lingered, reduced to almost sporadic type when extinct elsewhere, to revive with epidemic force and renew its invasive properties. Thus, the primary invasion of 1847 had died out after four years, except in Bohemia, where it made a fresh outburst in 1851; and, spreading thence, it lasted in Europe ten years. So the primary invasion of 1865 had ceased in 1868, except in the province of Kief in Southwest Russia, where it produced two local epidemics in villages, together with isolated cases in the western provinces of Russia, with forty-two deaths in St. Petersburg, and fourteen in Moscow (Pelikan); but in May, 1869, fatal cases began to show themselves in the camp at Kief, and the disease became epidemic in August amongst pilgrims, who lived under sanitary conditions so unfavorable as to be sufficient of themselves to produce sporadic cholera. The epidemic character of the disease was not defined until after it had attacked consecutively several persons who enjoyed the benefit of living in good sanitary conditions (Pelikan). From Russian sources we learn the extent of these secondary visitations. Dr. Archangelsky states that the epidemic of 1851 cost at least a million lives, of which 352,000 perished in Russia and Poland alone, with a percentage of forty-four to the attacks; and Dr. Pelikan states that that of 1869 was attended with a loss of 370,000 in the countries lying east and southeast of the Elbe, with an equal percentage to the attacks to that of the former. These great facts indicate that the secondary diffusions arising from the almost extinct embers retain the invasive energy, together with the mortality of the primary invasions from Asia. The question is now agitated whether the repetition of these secondary diffusions might not be prevented under fitting sanitary measures directed by a central international congress or board of health assembled on the first warning of a primary invasion from Asia, with plenary power to watch the progress of the disease and give aid wherever it may appear, and to watch over the extinction of its last embers in infected districts. The late congress at Vienna has strongly advocated this reasonable proposal; and England, foremost among nations in efforts to prevent future invasions, by her sanitary inquiries and measures of public hygiene in India, while deriving her own infections from the continent of Europe, must rejoice to find her sanitary policy thus widely adopted; and it is to be hoped that this Society will lend its wonted direction to secure the entire fulfilment of its long adopted principles. Through Egypt lies the only sea-route by which the disease can be imported, and she has shown her readiness to comply with the scientific teachings of Europe. Russia commands the land frontiers, across which it must pass. Perhaps the original route by the Volga may have become obsolete; but, as Mr. Radcliffe has pointed out, a fresh danger to Europe has arisen from Persia through the Caucasian provinces of Russia, where that Government has now established a strict observation, with means of quarantine. Such being the existing machinery in action—sanitary measures in India and preventive measures of exclusion on the routes from Asia to Europe—we may feel that more will be done than on any previous occasion to save Europe, and with it America, from any future primary invasion. The countries of Western Europe have cast off the early theories of atmospheric causation, and have carried into practice a firm reliance on the necessity for observation of arrivals from infected localities, together with isolation of introduced first cases and a stricter observance of general hygienic laws. In Central Europe there has of late been substituted for the exploded atmosphereric causation another by tellural influ-

[illegible] known as the "ground-water" theory. Where the last has been entertained, the late epidemic has been as severe as any previous one, while Western Europe has remained comparatively exempt. These are significant facts, and it is gratifying to notice that the opinions of the late congress have been more in accordance with those of Western Europe; and that recent contributions to epidemiology by Russian authorities—Archangelsky on the Recrudescence of Cholera in Bohemia in 1871, and Pelkan on that in South Western Russia in 1869—together with Schlesinger on the Cholera Epidemics of Denmark, afford strong confirmations of the same opinion, as grounds for further action in controlling these epidemics. The year 1873 was signalized also by a wide display of yellow fever in Eastern South America from Cayenne to Monte Video, and in the Southern United States, where it broke out at Shreveport on the Red River, two hundred and fifty miles inland from New Orleans, extending from thence to the Atlantic Coast and to the shores of the Gulf of Mexico. It presented itself also in Jamaica amidst bad hygienic conditions; and it has prevailed on the Delta of the Niger, menacing the expedition on the Gold Coast, which, however, remained intact through the enforcement of quarantine. It may have been of indigenous growth in Africa, but Sal, one of the Cape Verds, a commercial line between the Brazils and the Niger, was infected at an earlier date. In 1874 this pestilence has appeared again on the Coasts of the Gulf of Mexico and in the Brazils, with a less degree of force, which appears now to have expended itself. The plague, once indigenous to Egypt and the Levant, has disappeared there in the wake of a newly awakened commerce; it is now driven back to remote localities amidst semi-barbarous tribes, subject to the lowest social conditions. In 1874 it has been epidemic amongst the nomads of Kourdistan, the rice-growing tribes of the Dazerah, plains of Lower Mesopotamia, the wandering Affiz Arabs of the Hedjaz, and the people of the upland plains of the Cyrenaica, in each case exemplifying its dependence on the worst of general sanitary circumstances and its tendency to recur in the same localities as before. A remarkable feature of the visitations in 1874 was that of its appearances at so many distant points, between which no relation can be imagined; thus affording considerable support to the doctrine of spontaneity of origin. It took two centuries of progressive civilization after that great disinfecter, the fire of London, to drive the pestilence out of Europe; but modern sanitary science now bids fair to counteract [illegible] that later Asiatic scourge, the cholera. Thus, we see that the year 1874 has been signalized by the coexistence of the three grand pestilences—cholera, yellow fever and plague. Of the minor epidemic diseases which are still [illegible] civilized nations, the small-pox has been more extensive in England than in [illegible], but more closely limited to the northern and midland counties. Enteric fever has also been unusually frequent where small-pox has been most prevalent, and less [illegible] in the southern counties. Scarlet fever has, however, been the widest epidemic [illegible] the year. In London it commenced in the eastern districts in the spring and [illegible] its also infects the northeastern and southern districts. In London the [illegible] of the great special hospitals for zymotic diseases has been fully realized [illegible] affording a metropolitan example to be followed in all other large towns. [illegible] us as a nation to show the force of all sanitary measures in the prevention of the ravages of this class of diseases that become epidemic only when [illegible] conditions are allowed to exist; for, by adhering to this as our mission, [illegible] covince all other nations of the sure foundations of our principles of action. [illegible]

The Arithmetical Relations of Epidemics.

At a meeting of the London Epidemiological Society in March, reported in the *British Medical Journal*, April 3, 1875, Dr. G. H. **Evans** read a paper on the arithmetical questions involved in the history of epidemics. He stated that he had been led to interest himself in the mathematical expressions of the course of epidemics by observing the success with which Dr. Farr had, in January 1866, foretold that the epidemic of cattle-plague then increasing might be expected shortly to decline. The prediction, closely justified by the event, was based on the observation that the increase for the three previous weeks was not uniform, but at a decreasing rate; so that, by the same progression, the weekly number of attacks must soon reach a maximum, and thenceforth decline. Dr. Evans explained the process by which, from a given portion of a series, further members of the series might be calculated, and went on to consider how far the method applied to some of our own ordinary epidemics might be available for the practical sanitarian. By way of illustration, he had examined the behavior of cholera and scarlet fever in London; and he showed a number of charts in which he had inserted diagrammatically the actual weekly course of an epidemic, from its beginning to its end, along with the hypothetical course reckoned for the several weeks from the data afforded by the earlier portion of the outbreak. On several of these charts, there was a noticeable correspondence between the actual and the calculated progress of the disease investigated; and it was evident that, at some period during the rise of most epidemics, there was to be found a rate of progress from which might be deduced a series conforming very fairly to the actual numbers that are about to follow. Dr. Evan's illustrations showed, however, that the rate of progress during an increasing epidemic altered very materially within short spaces of time; so that, if calculated from a particular group of weeks, if too near the commencement, an excess obviously erroneous would result; if calculated at too late a period, the error would be on the side of defect; but, from certain weeks of its course, a calculation could be made which would be fairly justified by the facts. The illustrations showed that the data yielding the best forecasts of an epidemic were not derivable from its earliest weeks, but rather (as indeed might have been expected) from the weeks when the epidemic was tending to its culmination. Hitherto, however, he had obtained no indication to guide him in the selection of this particular period; hence, while admitting the value of the method for the purposes to which Dr. Farr had applied it, he could not at present say how to adapt it to general use as a means of predicting what the course of an epidemic would be at that part of it where such knowledge would be of most practical value.

V. ANIMAL AND VEGETABLE PARASITES.

Hydatid Cysts in the Brain.

Dr. **James Russell** gives this case in the *Medical Times and Gazette*, February 20, 1875:—

The patient's age was twenty-seven. Dr. Quirke was first called to him on January 6th of the present year. Death took place on November 4th. The cause of Dr. Quirke having been summoned was that the patient on the previous morning [illegible] with a confused feeling in his head, and with considerable difficulty [illegible] his words. He was under the impression that he had had a fit during [illegible]. Dr. Quirke states that the patient spoke in a hesitating manner, as if he [illegible] which was the proper word to use, as a foreigner does. He noticed [illegible] side of the face to be slightly paralysed, and there was complaint of [illegible]—in trying to read, the words seemed to run into each other.

The [illegible] took place in speaking and the facial paralysis became more [illegible]. In the course of the following month the patient had some weakness in [illegible] arm and leg. On March 14th he had two severe epileptic fits, and the [illegible] the symptoms were more decided. At that time, being the occasion of his [illegible] visit, I could hardly understand any word he spoke, but I cannot venture to [illegible] any other particulars of his state. He was then put on bromide of potassium, [illegible] medicine he continued to take for the following four months, and during [illegible] time he remained free from fits, excepting, as I afterwards learned, some convulsive movements in the right side of the face and in the right arm and leg in the [illegible] part of that period. Dr. Quirke states that at times there was evidence of considerable mental excitement; but this excitement the patient concealed in family [illegible]. However, on one occasion within three months of his death Dr. Quirke [illegible] sent for in consequence of his having threatened his wife's life, and found him [illegible] charge of the police.

The patient called on me on August 12th, and I then noted that he was almost absolutely speechless; he simply could not articulate his words. There was [illegible] partial paralysis of the right arm and leg; no deviation of the tongue; the [illegible] was symmetrical, and there was no distortion of the face; but he had felt some [illegible]ness in the opposite (the left) cheek, and on one occasion had felt something [illegible] with the left arm and leg, but only for a short time. I had no means of obtaining an ophthalmoscopic examination, but he read No. 1 of Jaeger. The immediate [illegible] of his calling upon me was his having had another fit on the preceding evening. [illegible] could not obtain a distinct description of any of these fits. Moreover, he had suffered from violent pain over the entire upper part of the head and over the [illegible] during the previous week or ten days, at times with such intensity that it [illegible] drove him mad. This was an entirely new symptom; he had been free from pain in the head previously. On the 30th of the same month Dr. Quirke was summoned, and again found his patient suffering from severe pain in the left temple. The hemiplegia was now complete; he was speechless, and also had some difficulty in swallowing, so that he disliked making the needful effort and often refused his medicine.

The pain did not recur, but during the month of September he had several fits; bedsores formed on his back; and he slept almost constantly, and when awake was in a stupid state. He emaciated very much, but lingered till November 4, when he died in a fit.

On post-mortem examination the only abnormal appearances met with were the following: The veins and sinuses of the membranes of the brain, and [illegible] of the cord (judging by the issue of blood through the foramen magnum), were loaded with blood, consequent, no doubt, on the mode of dying. The cerebral convolutions were pressed closely together, and the surface of the brain was dry. The only evidence of pressure having effected the organs at the base of the brain was afforded by those in the middle line being somewhat [illegible]; but the pons had a remarkable appearance, as though stretched to each side. The tissue of the [illegible] however, and of the medulla oblongata, was healthy. The chief part of the left hemisphere was occupied by a semi-transparent hydatid cyst, the size of an ordinary orange; it lay in the white matter of the hemisphere, outside the lateral ventricle. It was united with brain substance sufficiently to cause flakes of that substance to adhere to its surface after removal, but without any increase of density in the tissue of the brain. Internally it had evidently compressed the corpus striatum and thalamus; in the outward direction it had exerted protracted pressure upon the convolutions, coming actually to the surface at about the middle of the hemisphere. The cyst was single, not containing any daughter vescicle. There was no hydatid in any other organ of the body, nor any morbid condition.

A Case of Worms in the Urinary Bladder.

Dr. Melvin Rhorer, writes to the *American Practitioner*, March, 1875:—

Several weeks ago I was called in consultation to sound a gentleman supposed to have stone in the bladder. The patient, aged sixty-four years, was a farmer, who had for the past twelve months been affected with occasional interruptions to the flow of urine, which for the last three weeks had increased in severity, causing great pain in evacuating the bladder, and which now amounted to almost a total retention. His bladder was very much distended, he having passed no urine for forty-eight hours, except a constant dribbling of highly-colored urine, with an occasional drop or two of blood.

I easily introduced a catheter and evacuated the bladder, finding in the vessel about forty or fifty small red worms about half an inch in length, and having a number of legs arranged in two distinct rows from one extremity to another, and their bodies being encircled with numberless small cartilaginous rings. It was with some difficulty that I pressed a lancet through the body. In about two hours the patient, at my suggestion, forced a passage from his bladder, amounting to several ounces of urine, with about half a dozen more worms. No attempt was made to sound for stone, the diagnosis being too clear as to the cause of the trouble. We ordered spirits of turpentine internally, and the catheter to be employed daily. For the following ten days he passed from four to six worms at every action; since which time he has voided urine without the use of the instrument, and the discharge of worms has ceased. He has no pain on micturition, and is free from his late trouble, except a sense of soreness over the hypogastric region.

Cases of Tænia.

The following cases are reported from the clinic of Prof. Dunster in the *Peninsular Journal of Medicine*, December, 1874:—

Mary S., two and a half years of age, was brought to the dispensary of the Long Island College Hospital in April last. She was somewhat thin and spare in appearance and development, but gave no other superficial evidence of suffering from any very serious disturbance of her health. In infancy she had for several months suffered from dysentery, which had reduced her to a very low state, and for some weeks, the mother stated, she had been largely fed upon raw grated beef. From time to time during the last six months she had passed from her bowels fragments of tapeworm. The mother was aware of this fact, and had learned to recognize the joints of the parasite, and brought with the child several pieces which had been passed the day previous, and which, on inspection, proved to be the mature segments of the tænia solium. The seeds of the common pumpkin (*pepo cucurbita*) were ordered to be taken freely and without any special limitation as to quantity. A number of segments were passed from the bowel the next day; on the following day the child was presented at Prof. Dunster's clinic. After exhibiting the specimens and describing the usual history and symptoms of such a case, he explained the mode of development of the adult tænia from the ovum, which passes through the intermediate stage of the cysticercus, always of course requiring two separate animals to complete this cycle of development. In this way, when the flesh of the lower animal, which contains the cysticercus, that by its boring apparatus has made its way from the stomach, is eaten in a raw or imperfectly cooked condition, the cysticercus is set free and finds the proper nidus for the completion of its development. Dr. D. then enumerated in some detail the different plans of treatment, and ordered for this patient the oil of the male shield fern (*filix mas*) in doses of five drops, to be administered during an absolute fasting of one day, and to be followed by a brisk cathartic.

A large quantity of fragments of tænia were passed on the action of the cathartic, and these were brought a day or two later for examination. There were many single joints of varying size; others strung together in pieces of three to ten or more, and the narrow cord-like fragments, several inches in length, which indicated that the immature joints of the neck had also been cast off. No head proper could be found, though the mother stated that a small bit, which she correctly described as the head, had been kept by a druggist to whom she had shown the specimens. As, however, she had listened only a day or two previous in the clinic to a description of the head of the tænia, and had seen a drawing of it and had heard the directions which were given in searching for it, her statement must be accepted with some reservation. Another fragment of a worm was found, which was of an entirely different character from the tænia solium. This piece was about a foot in length, and instead of presenting the usual parallelogram-shaped pieces with the curved edges, so characteristic of the solium, the joints were nearly three-fourths of an inch in breadth, and consisted, apparently, of a series of rings closely packed one upon the other in an imbricated manner. There were about fifty joints to the inch in several places where a count was made. The first impression was that the new parasite was the *bothriocephalus latus*, but on closer examination with a magnifying glass the stomata leading to the oviducts and ovaries were found not in the centre, but upon the edges of the segments. The edges of the segments, moreover, were quite thick, while the centre was comparatively thin and translucent, so that when the specimen was held up against the light a broad, bright line could be distinctly seen passing apparently down the entire length of the worm. These peculiarities showed it to be a specimen of *tænia mediocanellata*—a variety almost never seen in this country, and, relatively speaking, quite uncommon anywhere.

The co-existence of two varieties of tapeworm in the same subject, especially in one so young as was this patient, is so rare that I have deemed it worth while to put the case upon record. Dr. Dunster, in commenting upon this point, stated that he could not recall from memory any published report of a similar case, though he had been informed by Prof. Janeway, of New York, that a case of the co-existence of the tænia solium and the bothriocephalus latus had occurred a few years since in the lunatic asylum on Blackwell's Island, in New York. The patient was an adult, and the fact of there being two kinds of the tænia was undetected at the time of the passage of the parasites. The specimens, however, were preserved, and a recent examination of them had elicited this interesting fact.

The Pathological Significance of Nematode Hæmatozoa.

The *Lancet*, February 6, 1875, says :—

Staff-Surgeon T. R. Lewis, M. B., whose name is so honorably connected with admirable scientific work and original investigation on this subject, as well as with researches on cholera, has contributed an article, illustrated by excellent plates and wood engravings, to the Tenth Annual Report of the Sanitary Commissioner with the Government of India, in continuation of his previous observations. It will be remembered that Dr. Lewis, in a monograph that appeared as an appendix to the Annual Sanitary Report for 1871, announced his discovery of a microscopic nematode worm in countless numbers in the blood. This further paper, as well as the second series of a conjoint report by Drs. Lewis and Cunningham of their microscopical and physiological researches into the nature of the agent or agents producing cholera, will thoroughly repay careful perusal. We must, however, restrict ourselves to noticing Dr. Lewis's fresh contribution to the subject of our heading, and we cannot do better than adhere closely to his own summary. Dr. Lewis says that it is very difficult to embody their substance in a few words without risk of misinterpretation; but those interested in the subject will, we doubt not, refer to the paper itself.

Our author arranges his remarks under two heads—(1) the chief reasons for the belief that chyluria and the elephantoid state of the tissues are associated with the presence of a microscopic hæmatozoon; and (2) in what manner, such connexion being satisfactorily established, this fact can aid us in offering an explanation of the evidence we possess that the disease is due to mechanical interruptions to the flow of the nutritive fluid in the capillaries and lymphatics.

With regard to the first, Dr. Lewis states that detailed histories of a considerable number of individuals affected in this manner have been published by him, and that in all the *Filaria sanguinis hominis* has been detected. He has now traced the filariæ to the blood *direct* in eleven, and detected them in one or other of the various tissues and secretions of the body in more than thirty individuals. The history of one of these persons could not be ascertained, but all the others were known to suffer, or had suffered, from chyluria, elephantiasis, or some such closely allied pathological condition.

With reference to the second head, our knowledge is not so exact, and almost all the inferences have to be drawn from observations made in connexion with the hæmatozoon described as occurring in pariah dogs. Judging from what may be seen in these, and from data derived from those post-mortem examinations which have been made of individuals affected with this parasite, Dr. Lewis thinks that the interference with the flow of fluid in the lymphatic capillaries and smaller blood vessels may not unreasonably be attributed to one or other of the following causes :—(*a*) To tumors produced by encysted mature entozoa along the course of the blood vessels and lymphatics, impeding the flow of fluid in them by pressure, either directly or indirectly by interfering with the functions of the nerves supplied to the part. (*b*) To the active migration of the immature, or rather partially mature parasite, the act of perforating the tissues—nervous or vascular—producing more or less permanent lesions. (*c*) To the activity of the liberated embryos in the capillaries causing rupture of the delicate walls of these channels, in which possibly ova may have accumulated, owing to their size, or an aggregation of active embryos taken place, either accidentally or by the parent having migrated to the capillary termination

[illegible]

[illegible] had already suggested in his work "[illegible] and [illegible] Observations in India," and still more recently at a meeting of the [illegible] Society, as a possible occurrence, has turned out to be a fact [illegible] Dr. Lewis had [illegible] and he has [illegible] by having discovered this parasite in the circulation of persons [illegible] cases of disease.

[illegible] Parasitic Diseases.

In an analysis of one thousand cases of skin diseases, given by Dr. [illegible] in the American [illegible] for May, [illegible], he says:—

Animal parasitic diseases formed nearly one-tenth of the whole number of [illegible] cases. Of the ninety-three present, [illegible]-seven were due to the varieties of [illegible] lice, and [illegible] forming a [illegible]. These diseases, [illegible] I am [illegible] to say, very much less frequent here than in Scotland; for McCall Anderson states that scabies forms fully twenty-five per cent. or one-fourth of the whole number of skin-patients among the poor in Glasgow, and [illegible] over eighteen per cent. at St. John's Hospital for Diseases of the Skin in London. It is to be hoped the proportion here will be even more lessened as intelligence and sanitary know[illegible] pervades the community.

The varieties of phthiriasis were as follows: phthiriasis capitis 24; corporis [illegible] not stated, 11; pubis, 1; phthiriophobia, 1. Of the [illegible]-seven cases [illegible] were females and twenty-two males. The statistics as to the first variety, a[illegible] the head, are interesting as to probable causation. Twenty-three of the [illegible] four occurred in persons under twenty years of age; and of these twenty [illegible] nineteen were in females, owing probably to the longer hair, the number [illegible] of articles used for adornment, and the greater difficulty in combing it when infected. The plica polonica, the nature of which was so long a mystery, is [illegible] more or less than hair matted together by uncleanliness and allowed to become the home of both animal and vegetable parasites. Happily this condition [illegible] seen in this country; none of these cases even approached to it. [illegible] very frequent accompaniment of poverty, and the cases here recorded [illegible] no idea of the frequency of the condition, as but few of those [illegible] apply for relief, knowing its uselessness under the existing [illegible] from them [illegible] sionally over-scrupulous persons become infested with the idea [illegible] ing from body or head-lice, when really perfectly free from them, [illegible] as to cause themselves much mental distress and the physician [illegible] One such case was recorded under the name phthiriophobia.

Our common method of treatment of the head-lice among the poor is to soak the head well for twenty-four hours in kerosene oil, which destroys all the bugs and their nits; then wash the head well with soap and warm water, comb it out, and saturate it with cod-liver oil till all the sore places are healed. This treatment is very rapid and very sure, three or four days or a week at most serving to heal all excoriations. Or white precipitate or citrine ointment, diluted two or three times, applied from the first, will answer in many cases, and is perhaps the best in private practice. Its value is increased by having it highly scented with rosemary or some other volatile oil. For lice of the body we generally use a combination of one drachm of caustic potash and two drachms of carbolic acid in four ounces of water, using it diluted once or twice at first, directing also the clothing to be sprinkled with it. To make the cure of any of these forms permanent, the clothing must be either boiled or baked for a long time, also the bed-linen, and often the bedding itself requires attention.

Of the thirty-six cases of *scabies*, twenty-one occurred in males and fifteen in females, and twenty-six of the entire number in persons under twenty years of age. In several persons older than twenty years it could be directly traced to contagion in the family or to the occupation. Thus, one old man of sixty with scabies was a shoemaker, and contracted the disease in all probability from children's shoes which he was mending; for we know that the feet are very commonly affected in this disease in children. Another man, aged twenty-seven, was a rag-carpet maker, an occupation fraught with danger from many infectious diseases. In one family five were affected, aged respectively ten months, four, six, eleven, and thirteen years; in another family four members had the eruption.

In older persons the disease was treated with sulphur ointment, with the addition of a little carbonate of potash. In younger patients, with more tender skins, the liquid storax or balsam of Peru, in ointment, was used, with equally good, if not better results.

CLINICAL MEDICINE.

I. GENERAL AND CONSTITUTIONAL DISEASES.

The Origin of Milk Disease.

Dr. E. S. Elder, of Morristown, Indiana, says in the *Transactions of the Indiana State Medical Society*, 1874:—

I think that the disease is always produced in man by eating the flesh, or partaking of the milk, or some of its products, of animals affected with the disease, or occasioned by inhaling the infected air or emanations while skinning animals that have died with the malady. In the herbivora, by eating the vegetation of the infected districts, among which is the specific cause of the disease; in the carnivora, by partaking of the flesh of animals that have died with it; with birds, the affection is induced by eating insects generated in, and supported by, decaying animal remains.

In the family I attended, out of seven members, four had the disease; the three that escaped used no milk nor butter. In the infected districts, families having no cows and using no milk, butter, nor diseased meat, always escaped. Calves sucking cows affected, became diseased, while those that were weaned and confined in cultivated grass lots escaped. I have known the suspected milk fed to dogs and pigs, and the disease induced in that manner. That dogs and other animals contract the disease by eating the diseased flesh, we have numerous demonstrations. I have myself seen dogs laboring under the disease, and it was clearly proven that they contracted the disease that way. Hogs will die with it, near the remains of other animals of which they have partaken.

That the original cause is vegetable, I infer from several reasons, among them the following: Animals, other than the herbivorous, are comparatively free from it, and when affected it can clearly be attributed to their using infected meat, etc. Again, it prevails only in the season of the year when vegetation is accessible; animals confined in close quarters, or in fields or lots that have been cultivated, always escape. Again, it is universally conceded that cultivation eradicates it most effectually, also close pasturing, or destroying the primary vegetation; enclosing the land, and seeding it with the native grasses, removes the cause; burning over the infested districts removes it. So that in the prairie regions of the West, the infected localities are always beyond the regions devastated by autumnal fires that pass over those prairies.

To my own knowledge, in a large district of country in Shelby county, where several years ago milk-sickness was the bane of the backwoodsman's life, now, with the single exception of a large unfenced woods pasture, the disease is unknown. In that particular woods the disease still exists, and in 1872 my father's family were poisoned, three of them dying with milk-sickness, by using milk from cows that had escaped from home and were found feeding in that woods, and in three weeks after more than a dozen cattle were found dead in the same tract of woods.

Prof. Drake considered the poison a specific one, of vegetable origin, and the particular plant, one belonging to the poison oak, or toxicodendron family. That his theory is correct, I incline to believe.

Ophthalmoscopic Indications in General Diagnosis.

M. Bouchut has some remarks on the value of the ophthalmoscope in general diseases. We quote from a translation in the *Medical Times and Gazette*, January 23, 1875:—

All diseases of the brain and spinal cord, and all the nervous affections termed neuroses, because they are regarded rather as functional than organic, ought to be investigated by its aid. When by its assistance the physician discovers a lesion of the optic nerve, of the retina, or of the choroid, in a case presenting convulsive, choreic, paralytic, or spasmodic nervous phenomena, he may be certain that a cerebro-spinal lesion is the starting-point of these symptoms. Every symptom regarded as nervous, which is accompanied by a lesion of the fundus of the eye, is caused by an organic alteration of the brain, the cord, or the membranes. Thus is it with chorea, considered by many physicians as a simple neurosis; and yet this should, in consequence of the congestive optic neuritis found in its subjects, be regarded as a congestive affection of the anterior spinal cords. So also epilepsy, in a certain number of cases, is the result of cerebro-spinal lesions which at the same time induce changes in the optic nerve or retina. Also hysterical paraplegia and paralysis produce no neuro-retinian changes, while symptomatic paraplegia and spinal ataxia produce either simple hyperæmia of the optic nerve or hyperæmia and atrophy. So leucæmic, tubercular, glycosuric, or albuminuric diatheses are often revealed by optic neuritis, the ophthalmoscopic diagnosis in some of these cases being most striking. It is especially in patients attacked by general acute tuberculosis, accompanied by typhoid symptoms, and which are mistaken for typhoid fever, that cerebroscopy becomes truly remarkable. In an infant in whom the disease had all the appearance of typhus, the ophthalmoscope, by revealing tubercles of the choroid with neuro-retinitis, determined that there were tubercles in the brain, and consequently productions of the same character all over the body—which the autopsy demonstrated to be the fact.

Can any diagnosis be more exact than this? You see, in the living man, tubercles of an organ which permit you to conclude that they will also be found elsewhere. You see a nerve either healthy or diseased, and this indicates whether its roots are sound or diseased; and you have almost laid bare arteries and nerves which are so afferent to the brain that changes in them, studied with care, represent similar changes in a portion of the nervous centres. It seems almost marvelous; and I do not think that since auscultation there has been anything discovered so useful to semeiology. Henceforth, the physician may divine and often affirm lesions of the brain, cord or meninges, the diagnosis of which before was impossible or only probable. Thus: 1. From hyperæmia and hyperæmic tumefaction of the optic nerve there results the diagnosis of mechanical or inflammatory hyperæmia of the brain in meningitis, in cerebral hemorrhage, effusions into the brain, and in some cases the diagnosis of ataxic or other spinal diseases. 2. By papillary œdema joined to hyperæmia I recognize œdema of the meninges; or an obstructed cerebral circulation through meningitis, cerebral tumors, ventricular hydrocephalus, cerebral hemorrhage, meningeal effusions, thrombosis of the sinus, etc. 3. By neuro-retinian and choroidean anæmia I recognize cerebral hemorrhage of *ramollissement*, and if the anæmia is absolute it is fatal. Empty arteries and veins of the eye, and an exsanguineous condition of the choroidean network, indicate arrest of cerebral and cardiac circulation. 4. By exudative and fatty optic neuro-retinitis I recognize chronic meningo-cephalitis; the encephalitis of cerebral tumors, and the changes in the nervous substance which accompany these tumors. 5. By retinian varices and thromboses I distinguish meningeal thromboses or those of the sinuses. 6. By the aneurisms of the retinian arteries we may recognize the miliary aneurisms of the brain. 7. By simple retinian hemorrhages we recognize a compression of the brain by hemorrhagic or other effusions; but if these retinian hemorrhages are accompanied by retinian steatosis, there is also cerebral steatosis, and this is the case in chronic albuminuria, leucocythæmia, and glycosuria. 8. By atrophy of the optic nerve, tumors of the brain and cerebral or spinal sclerosis are discovered. 9. Finally, we never meet with tubercular granulations in the choroid without the existence of similar ones in the lungs and other organs.

The Treatment of Typhoid.

In the *Transactions of the Virginia State Medical Society*, 1874, (p. 45) Dr. JACKSON maintains that nitrogen is required in this disease and hence administers ammonia in every stage of this disease. When the febrile action is high, the nitrate is the most appropriate. Besides being doubly nitrogenous, it is the most sedative salt we possess. In a recent case, half a drachm divided into four doses, given at intervals of two hours, brought down the temperature from 104° to 100°, and the pulse from 120 to 104. A favorite prescription with me in this early stage, and before the diarrhœa sets in, is—

℞. Ammon. nitratis, ʒij.
Spts. ætheris nitrosi, ℥ss.
Aquæ, q. s. ut fit, ℥ij. M.

S.—Teaspoonful every second hour when awake.

This produces a delightfully calm condition, without cerebral disturbance, and is almost certain to secure comfortable sleep.

The supervention of diarrhœa is by no means certain; in two cases now under my care, there is constipation, which in one of them is very obstinate. If, however, diarrhœa does occur, I adopt the *acetate* as the most appropriate ammoniacal salt on account of its compatibility with the acetate of lead, which is a most valuable astringent in this condition. I use liquor ammoniæ acetatis, ʒj., every second hour, and plumbi acetas, grs. ij., with pulvis opii., grs. ss., after each discharge from the bowels.

If meteorism exists, I combine gum camphor with the above astringent, or a small dose of oleum terebinthinæ with each alternate dose of the spirit of Mindererus.

If nervous symptoms appear, indicating approaching delirium, which, however, is seldom the case if the above plan has been persisted in, a valuable combination will be found in potassæ chloras with ammoniæ carbonas—the proportion depending upon the condition of the patient, a depression of the vital powers requiring an excess of the carbonate; the oleum terebinthinæ to be continued or not, as demanded by the tympanites.

I have never known coma to occur if the above plan has been energetically pursued; and it need never be expected unless there has been neglect on the part of the nurse, or some other plan of treatment has been pursued; for it has been only in consultation cases that I have seen it for many years. If, however, it does supervene, we have a most potent and infallible remedy in the ammoniæ hydrochlora

It has not only the effect of supplying the nitrogen, and thereby nourishing the brain, but also that of dissolving the thickened envelopes of the blood-corpuscles, and I have known patients aroused from a state of coma by a few doses of this valuable therapeutical agent. I formerly was in the habit of giving as much as ten grains, repeated every second hour, but I have found half that quantity, at double that interval, generally sufficient. Indeed, I have thought sometimes that injury has been done by the larger doses too frequently repeated; it might be possible that the structure of the blood would be destroyed by it. I have never known this to fail, in a solitary instance, to relieve the coma; and if disorganization or perforation of the intestines has not already taken place, a favorable result may certainly be expected from its administration.

After this resumé of the points to which attention was called at our last meeting, permit me to refer to some striking cases illustrating the efficacy of this plan of treatment. I have stated that under it delirium but seldom occurs; and to substantiate the statement I might adduce very many cases, but will only recall two or three, which I consider as furnishing proof, first, that the delirium is owing to the brain not having its proper aliment; and secondly, that the delirium is prevented or relieved by the administration of nitrogenized medicinal agents.

An instructive case illustrating these points was that of an intelligent lady who, entirely free from delirium, was a close observer of her own symptoms, and was almost her own nurse, calling for her medicines with regularity. She called me to her bedside on one occasion and said, "I think, Doctor, you make the intervals between my doses too long; you tell me to take my medicine every two hours, but I think it ought to be every hour and three-quarters." Thinking the remark was a manifestation of some cerebral disturbance, I was not inclined to attach very much importance to it; notwithstanding this, I asked her what reason she had for thinking so? She replied that during most of the interval she felt very comfortable about the head, but during the last quarter of an hour she felt confused, and noises in the house and street disturbed her. I told her that this was the best evidence that the interval was too long, and enjoined upon her to lay aside her watch and to repeat the dose upon the recurrences of these sensations. She never complained of them again, and this was the nearest approach to delirium throughout the case.

A case showing the power of the salts of ammonia in quieting delirium after it has set in, was that of a mulatto girl of about fourteen years of age to whom I had prescribed a solution of the nitrate of ammonia to be repeated every second hour until I saw her. On my visit the following day I found her delirious, talking incoherently and wildly staring from window to window. Astonished at this state of things which seemed to be the first case of failure in this treatment, I anxiously inquired how much of the medicine she had taken? Her stupid mother replied that she had not taken any since the dose I myself had given the day before, and that she was waiting for me to return before giving any more. This explained the cause, and being anxious to ascertain whether the brain would be quieted by the remedy proposed alone, without the aid of revulsives, etc., I directed the active administration of carbonate of ammonia. In ten or twelve hours she became quiet and calm, and slept comfortably the succeeding night.

The most violent delirium I have ever seen in enteric fever was in the case of a Confederate soldier who was attacked while with the army near Yorktown. Before his friends could reach him he had become delirious, and on one occasion he had left his bed and had been found in an old corn-field, imagining that the stalks were his army and that he was General Lee marshaling his forces. In this state he was brought to his home in London county, where he was placed under my care. Not having access to the notes of the case, I cannot now remember precisely how long the delirium lasted after he was placed under treatment, but I know the case was not a long one and recovery took place under the use of the carbonate without any unpleasant sequela.

With regard to coma, as it is generally if not necessarily preceded by delirium, it still less frequently than the latter, occurs in cases of enteric fever treated by the ammoniacal or nitrogenous plan. Indeed I cannot recall a solitary case as occurring in my practice since the year 1848, at which time I first tried the hydrochlorate of ammonia. In the first case in which I used it the effect was so magical I never can forget it. The patient was a negro boy about 19 years of age; he had been treated by the old plan of quinine and turpentine, and after having been delirious for several days he became profoundly comatose. His tongue was hard and refused to soften, his eyes were glassy and set, his lips parted from his teeth which were covered with sordes. He was declining with great rapidity, and upon leaving him at bedtime I calculated from his rate of decline that he could not live beyond the next noon. The next morning confirmed this impression, for he had gone down at the rate predicted. The only thing for me to do, was to test the efficacy of my plan for dissolving the thickened envelopes of the blood-corpuscles. Accordingly I administered ten grains of muriate of ammonia at 6 a. m., to be repeated every second hour until my return. When I left him at this hour it was impossible to rouse him; when directed to protrude his tongue there seemed, however, a slight effort to obey. There was no difficulty in examining this organ as, for two days his mouth had been wide open. My next visit was at 10 a. m., and on entering the room you may imagine my surprise at hearing him salute me with "good morning Doctor." His convalescence was soon established and his recovery speedy. I have seen several cases very similar to this, which have satisfied me of this great remedy in this condition.

II. DISEASES OF THE BRAIN AND NERVOUS SYSTE

Cerebro-spinal Fever.

Dr. J. B. **Hamilton** writes to the New York *Medical Journal*, February, on cerebro-spinal fever:—

I am not much in favor of set formulæ, but should I be called to treat a ca day I should outline the treatment as follows: For the first twenty-four or eight hours—

℞. Ext. ergot. fl., ℥j.
Sp. ammon. arom., ℥ij.

A teaspoonful in a little water every four hours.

℞. Potass. acetat., ʒxij.
Aquæ camph., f℥vj.

A tablespoonful every two hours until diuresis is produced.

In addition to these remedies I should direct a warm bath, followed by in flannel or rubbing with dry mustard, every three, four, or six hours to the urgency of the case. Stimulants may be necessary from the outs

As soon as the symptoms show any amelioration, the ergot mixture may be diminished in frequency, and at the third or fourth day discontinued. Quinine in large doses will then be found of advantage, and a more stimulant diuretic, as spts. etheris nit., may be substituted for the potassa acetate; and for the sequelæ nothing in my hands has proved more serviceable than iodide of potassium as occasion demanded.

This treatment was arrived at only after finding the utter worthlessness of the bromide-of-potassium treatment, which is so much relied on by some practitioners, and I have no doubt but many cases seen by me, not reported, which were only symptomatic, and were speedily relieved by this treatment, would, by the ordinary method, have been as violent as the first cases here recorded, and would have met the usual fate.

I wish to enter an emphatic protest against the treatment of cerebro-spinal meningitis as an inflammation.

It is a zymotic disease, and the fever and localized inflammatory process depend upon a miasmatic poison.

In the beginning the skin is always dry; the secretions throughout the body are arrested. This is generally before the practitioner sees the case, and the patient often dies from retention in the blood of excrementitious material. When the excreting organs are at once overpowered by the malarial poison introduced from without, the patient dies suddenly, a victim to chemical forces generated within his own body.

No treatment will be of any avail which does not have *elimination* for its primary object. The best method of that elimination may be a matter of dispute, but, as elimination by the kidneys is unattended by depression, that method would seem preferable. The skin is an eliminating organ of great importance, and all possible advantage should be taken of that physiological fact. Happily, diuretics and diaphoretics are easily combined, and the warm bath with mustard excites the sudoriparous glands.

The retention of urea in the blood is shown by the objective symptoms, and the uric-acid smell in the perspiration; and the great relief afforded by diaphoresis and diuresis gives further evidence of the toxæmic condition of the patient.

The treatment outline has been found reliable, and this view of the pathology of the disease will, I think, bear the test of time and patient investigation.

The Therapeutics of Insanity.

In the New York *Medical Journal*, December, 1874, Dr. E. C. Mann writes:—

The hydrate of chloral has proved to be a very valuable remedy in the treatment of insanity, often procuring refreshing sleep when all preparations of opium fail. It has been shown to be most useful in mania with sleeplessness and restlessness, in doses of from thirty to sixty grains. The great advantages that it possesses are, that it does not constipate the bowels, does not disturb digestion, the doses do not require to be increased, as is the case with opium, and the sleep produced by it resembles natural sleep more than that produced by most other narcotics. From our own experience we would decidly recommend the combination of chloral with morphia, or chloral with hyoscyamus, as being preferable to either alone. In very violent cases of maniacal excitement with sleeplessness and dangerous exhaustion, and weak pulse, a dose of twenty grains of hydrate of chloral and one-quarter of a grain of morphia has produced a long, natural, healthy sleep, from which the patient has awakened refreshed and invigorated, and, after a few repetitions of the dose on successive nights, the symptoms have disappeared, or have been greatly relieved. When the chloral has been given in connection with hyoscyamus in maniacal excitement and sleeplessness, fifteen grains of the hydrate of chloral and one drachm of the tincture of hyoscyamus have been administered at night, and the dose repeated in two hours if sleep was not induced, and the results have always proved the success of the treatment.

The use of digitalis has been advocated by Dr. Lockhart Robertson, and by Dr. Duckworth Williams, his successor, at Hayward's Heath, England. They claim that digitalis is a valuable sedative in both recent and chronic mania, and also when these forms of insanity are complicated with general paresis and epilepsy. The dose they employ ranges from half a drachm to one drachm of the tincture, this dose being continued for some days and then gradually decreased. Stimulants are necessary to ward off the dangerous stage of exhaustion which accompanies or follows acute maniacal excitement, and is contraindicated only when there is excessive plethora.

The fluid extract of ergot is used to overcome the cerebral hyperæmia, which is an attendant upon many phases of insanity, and acts by exercising a controlling influence upon the calibre of the intercranial vessels by virtue of its power over the non-striated muscular fibres and cells contained in the contractile coats of the vessels. It reduces excitement, shortens the attacks, and widens the interval between them. In epileptic mania it often prevents the recurrence of the attacks, and, in short, does all, even more, than was first claimed for it by Dr. Browne, of the West Riding Asylum, when he recommended its use in recurrent mania, in chronic mania with lucid intervals, and in epileptic mania. The dose employed should range from one-half to one fluid-drachm of the fluid-extract of ergot, three times a day for as long a period as necessary to reduce the cerebral congestion. Last, but not least, may be mentioned the use of warm baths, which are of inestimable value in asylum practice. The tranquilizing effect of a warm bath in relieving cerebral irritation and in promoting sleep, is often wonderful, after all other means have failed. Patients with excessive maniacal excitement, hot head, dilated pupils, tongue thickly furred, and a high temperature in the axilla, have repeatedly passed a comfortable night, after having remained for half an hour in a warm bath at a temperature of 100°. This in connection with a dose of chloral and morphia or hyoscyamus, will often suffice for the relief of acute mania, if repeated on successive nights, if good, refreshing sleep can be induced.

Movements in Paralysis.

The value of active and passive movements in Paralysis is set forth in the New York *Medical Record*, March 6, 1871, by Dr. W. R. Fisher:—

He states the indications are (1) To maintain nutrition. (2) To modify the abnormal process. (3) To promote the restoration of the interrupted relation between the nerve-centre and its peripheral distribution, for the re-establishment of function.

Active and passive movements are capable of responding, under suitable circumstances, to each of these requirements with more or less efficacy; while, in regard to the third division—the renewal of voluntary control over muscular action—the superiority of systematic active exercises over every other plan of treatment does not admit of question.

The first indication may be reached by various modifications of mechanical force, applied to the paralyzed region either by the hands of an experienced manipulator, or by some labor-saving machine. It is unnecessary to enter here upon a detailed account of the various manipulations which may be practised for this purpose; let it suffice to say that the patient is for the most part entirely *passive* during the administration of such mechanical processes as rubbing, movements of the joints, kneading of the muscles, vibrations of the limbs—in short, all the manipulations which the French group under the term *massage.* From their proper use various results may be obtained, in accordance with the especial object which is sought. The growth of the tissues of a paralyzed limb, from the skin to the bone itself, may be most advantageously modified, the temperature being increased, the circulation of the blood quickened, and the interstitial changes of nutrition rendered more complete. Hence the general comfort of the patient is decidedly promoted by these manipulations. Again, by means of passive movements the large joints, which are prone to suffer secondarily in the course of paralyses which involve the extremities, can usually be maintained in a healthful condition. Such of the so-called paralytic deformities as depend on passive shortening of muscles, together with stiffening of the fibrous tissues about the joints which annoy and embarrass the patient, as well as often prove a cause of actual suffering, can be prevented, or if they have been allowed to become established, can be removed. So, too, that form of inflammation of the shouder-joint which Charcot and Hitzig have described* as sometimes arising in the course of hemiplegia, from the continuous pressure of the joint surfaces, finds its only treatment, for prophylaxis as well as cure, in such passive exercises as secure the normal motility of the articulation. But perhaps the most important results from the use of passive movements for their local effects are seen in the prevention of muscular degeneration. The nutrition of muscle is promoted in great measure by *active* exercises, which are to be hereafter spoken of; but these passive movements also bear an important part in preventing that muscular atrophy which is the result of want of use, and which arises in some forms of palsy in essentially the same manner as it is occasioned by a cumpulsory loss of function from anchylosis of a joint, or during the confinement which the treatment of a fracture requires. The thermometer often shows an increase of one or two degrees Fah. after a thorough *massage* of a limb, and, if motility exists at all, the muscular tone is always temporarily increased. The electro-muscular contractility is often markedly improved by the same means. When voluntary control of the muscles has been lost, it is essential to prevent this atrophy by supplying an artificial passive exercise, either by means of electricity or by manipulations, to the end that when a restoration is effected the volitional effort may not expend itself upon degenerated muscular fibre. When electricity cannot be employed with safety—for instance, in the early stage of a paralysis from central lesion—the movements and manipulations offer themselves as worthy substitutes; and even when galvanization or faradization is not contraindicated by the condition of the patient, not only may they be used with advantage in combination with electricity, but often indeed without detriment in its stead. That passive movements are quite competent to arrest this atrophy from disuse, would seem to have been established by Reid's experiments, which showed that if the nerves distributed to two limbs be divided and the muscles of one limb be left at perfect rest, whilst the other is passively flexed and extended several times in the course of each day, the former set will undergo atrophy, and the latter will retain their normal size, weight, and structure.

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* Virchow's Arch., XLVIII., p. 345, 1869.

It is scarcely necessary to add that it is not to be expected that a means which is chiefly local in its action can influence to the degree which these experiments exhibited, that muscular atrophy and degeneration which is an *essential* part of some varieties of palsy.

The second, or remote objects—for the promotion of reparative processes at the seat of the paralyzing lesion—may be attained in two ways by the use of passive movements. In the first place, mechanical force, which is applied at the periphery, may be transferred as a remedial agent to the central nervous system, just as electricity when applied at the periphery may influence reparative changes in nerve-centres which have undergone serious lesion. We know that peripheral applications of either agent do exert an influence upon nerve-centres, for clinical observation teaches us that good effects follow a careful and proper use of them, and that dangerous signs of central irritation are excited by an injudicious use of them.

Under the latter circumstances electricity and the movements give rise to symptoms which are closely allied; headache, flushed face, excited circulation, and general discomfort. While there can be no doubt that, for therapeutic purposes in this special direction, electricity is by far the more powerful in its action, there are in favor of the substitution of movements in its place, at least in all doubtful instances, the facts that the general disturbance which an excessive use of the mechanical processes may give rise to, is not likely to be as severe as when electricity has been improperly applied; and that the bad effects from the former pass off more quickly and with much less subsequent exhaustion.

The second method of producing a remote effect is by a general application of passive movements to the whole body. In a palsy which interferes with or prevents locomotion, a considerable part of the consequent disordered digestion, general feebleness, and other symptoms of constitutional depression, may depend upon the absence of the usual and necessary bodily exercise; and it then becomes desirable to add to the local treatment a general artificial exercise, to promote healthful nutrition, and to keep up a good appetite and digestion. The kneadings and other manipulations should therefore be applied to the whole body, for when properly used they add most unquestionably in this indirect and secondary way to the completeness of the recovery. As thus employed they really become part of the hygienic treatment, and should be classed with cleanliness, fresh air, and diet.

But it is in accomplishing the third object which is to be aimed at in the treatment of palsy, the re-establishment of voluntary control over the muscles, that the use of movements is pre-eminently advantageous. The local use of passive exercises to affect the nutrition of paralyzed parts of the body may be supplanted very often by electricity, and, indeed, in some instances, especially where direct stimulation of nerve-tissue is required, the employment of electricity may be much more useful than they. Their secondary and remote effects upon cerebral disease or lesion of the nervous system are to be classed, as we have seen, among those which many other stimulant, tonic, or nutritive agents are capable of producing. But when we seek to repair the damage to function which a limb has suffered from paralysis, to renew volitional effort and to re-establish muscular obedience, there is nothing which can be substituted for systematic active exercises. Of course, the applicability of special gymnastics to any particular case of paralysis is determined by the nature of the lesion upon which it depends. In a paralysis arising from the pressure of an exostosis, an aneurism, or other tumor, or from progressing disease in the brain or spinal cord, they could be of little value. They are chiefly appropriate to the treatment of those palsies in which shock or want of use enter as prominent factors in the production of muscular inability, where functional disturbance predominates over organic change. Let a case of cerebral hemiplegia serve in illustration of the manner in which they are to be used. There exists in the early history of this variety of paralysis a period during which the nutrition of the paralyzed limb is almost at a stand-still, and then the passive manipulations and movements may be used, as we have already seen, to add to the comfort of the patient, and also to promote the renewal of active nutrition. Until this period of inaction is at an end, nothing further is to be aimed at. But with the return of activity in the nutritive processes, it becomes the physician's office to endeavor to restore to his patient his voluntary control over his useless limbs. Something more is to be aimed at now than the mere stimulation of muscular growth by passive manipulation and electricity. He is to seek to bring together the injured brain and the powerless muscles, and to restore their relation as nearly as may be by practising his patient in directing his will-power to the ordering of certain movements and his muscles to the execution of them. Beginning, then, at as early a period as is consistent with success (let us suppose this to be before the paralytic has recovered any voluntary control), his first step is to put his patient in an easy position, either lying or partly lying, with every part of the body completely supported, and with every muscle completely at rest. This preliminary is necessary, so that the whole effort which is to be made may exert itself upon the set of muscles which may be selected to receive it, and that no portion need be expended in muscular action to sustain the body or any of its members. The physician then takes a paralyzed arm or leg in his hands and directs his patient to concentrate his will upon the execution of a certain movement, and at the same time he slowly and steadily moves the limb in the direction indicated. This is repeated a few times with intervals of rest, and the treatment ends for that occasion.

Hysteria in the Male.

The following case is reported by Dr. JOHN CAVAFY, of St. George's Hospital, in the *Lancet*, December 26, 1874 :—

J. H——, aged thirty-seven, shoemaker, came under my care as an out-patient at St. George's Hospital on November 20th. He stated that for the last six months he had noticed that his urine, which was passed clear, became quickly turbid after standing, with formation of a thick, white deposit. There was at first no pain, but for the last month he had suffered from repeated headaches and pain in the back. He had never noticed blood in the water, and increased frequency of micturition, scalding, and suprapubic pain had been absent throughout. The man was well nourished, and of healthy aspect, but his manner was decidedly peculiar; he spoke quickly and excitedly, had a very frequent and rather spasmodic smile, and before commencing his recital he unlocked a bag from which he withdrew two large bottles containing specimens of his water, which he placed upon the table with an air of triumph. One of these was reported to be three days old, the contents of the other were stated to have been passed the same morning.

Both specimens were strongly alkaline, with a pure and pungent, but not in the east putrid, ammoniacal smell, and in each there was a copious, heavy, white sediment, which was most plentiful in the older specimen. A portion of the clear supernatant liquid was tested by the addition of nitric acid. No precipitate was produced, but there was a very strong effervescence, which was just as decided with hydrochloric and acetic acids; the mixture bubbled up as violently as champagne, and overflowed the test-glass. The sediment effervesced still more strongly, the greater part of it dissolving, but leaving a very perceptible insoluble residue. On microscopic examination it was found to contain a small quantity of granular amorphous matter, but was chiefly crystalline. There were a few crystals of triple phosphate and urate of ammonia was plentiful; but the greater part consisted of transparent, colorless, mostly feathery crystals, some few boot-jack forms, and a few which closely resembled the whetstone and small-tooth-comb shapes of uric acid. There was no trace of pus or blood. On November 27th he came again, with his bag and simper, and produced two bottles of urine, one passed the day before, and the other the same morning, according to his statement. They were of precisely the same chemical character as the previous ones, and the microscope showed the same crystals; but, in addition, two pieces of *striped muscle*, in the single slide examined. He was now asked to pass some urine before us, which he did with perfect readiness. It was clear, pale, and distinctly acid. A portion of this was mixed with an equal bulk of strong nitric acid and set aside in a cold place till next day; there was no crystallization of nitrate of urea. The rest was placed in a clean bottle, which was kept uncorked for a fortnight. No sediment was found, no ammoniacal odor was developed, but in its place there was the normal foul smell of putrescent urine.

The addition of extraneous matter to urine for purposes of deceit is not uncommon: chalk and sand have been so added, and in one case which came under my own observation, an old woman produced a dark greenish-brown tint and deposit by powdered aloes. As a rule such cases are not difficult to recognize, but here the distinct crystalline form of the deposit led me at first to suppose that it was naturally developed, and that the comparatively enormous quantity of carbonates and ammonia present were due to the exceptionally rapid decomposition of a large excess of urea, which, as Dr Fuller has pointed out, is often present in large quantity in the urine of nervous patients. But as no crystallization took place on the addition of nitric acid to the fresh urine, this supposition fell to the ground. The patient's manner was suspicious, and finally the bits of muscle in one portion of the sediment, and especially the fact that the urine kept by myself underwent no such change as he described, were, in my opinion, sufficient to justify the diagnosis of hysteria. Some may, perhaps, prefer to call the case malingering; but a malingerer has usually some distinct object to gain, such as money, or the food and comfort of a ward. These motives are, of course, absent in out-patients, and the man did not even as for a certificate. What matters were added by him I am unable to say, but it possible that a plentiful supply of smelling-salts and a little beef-tea or Liebig extract would produce similar results, should any one think the experiment wor trying.

On Writers' Cramp.

From a lecture on this subject given in the *Lancet*, January 23, 1875, by Dr. V. Poore, we extract as follows:—

Writers' cramp or scriveners' palsy is one of those diseases which Duchenne ca "functional impotences," and you will find it stated in text-books that the dise is characterised by inability to perform the act of writing; that all other acts, h ever delicate, are performed perfectly well, but that immediately the patient atten to write he fails (either at once or after having written a few words), generall the pen eluding his grasp, or sometimes by tremblings of the fingers, or definit jective spasm of some of the muscles employed in the act of writing. The ology of this disease has been stated to be a "derangement of co-ordinative centres." I find that within the last two years forty-two cases have come under my notice in which the principal symptom has been loss of writing power. Of these, thirty-one were called writers' cramp—that is, the loss of writing power was supposed to be the only thing amiss. As I have been most fortunate in seeing an unusual number of cases of writers' cramp, each of which has been subjected to a prolonged and thorough examination, I hope I may be excused for detaining you for a few minutes on the subject.

First, then, as to the act of writing, I would ask you to bear in mind that it is one of the most complicated possible, perhaps the most complicated muscular act which is ever performed by the body. The act of writing takes years of patient labor to acquire, and although children begin to learn very early in life, it is seldom before adult age is reached that their writing loses those evident marks of juvenility which we all know how to recognize. Perfect writing should be an act accomplished without effort, and almost without thought, or, in other words, it should be a purely automatic act, and one accomplished by an expenditure of mental stimulus so small that we can scarcely recognize it. For the accomplishment of the act of writing a very large number of muscles is required, and when we consider the "light yet firm grasp" of the pen which is necessary, the poising of the hand in the semi-prone position, the stroke-making movements of the pen accomplished by the flexion and extension of the fingers, the traveling of the hand across the paper and back again, and the journey of the hand to the ink-pot, we see that nearly every muscle between the shoulder and the finger-tips is brought into play, and we cease to wonder that years are required for educating these muscles to work accurately and harmoniously together.

There may or may not be a "co-ordinating centre" whose function it is to control the act of writing; this is a matter of speculation. It is, however, tolerably certain that, should one or more of the muscles which have been so laboriously educated exceed or fail in its work by an increased or diminished response to stimulation, the harmony of the complicated act of writing is interfered with, concord is converted into discord more or less marked, and that which had become a purely automatic act by dint of years of study relapses again into an act which requires a greater or less amount of attention.

Now, directly an act which should be automatic begins to demand our attention for its execution, the difficulties of executing such act are increased a hundredfold. Fear of failure, especially before others, is ever present to the mind, and it would seem as if a certain proportion of that mental stimulus which ought to animate the muscles suffered what I have called emotional diversion, and thereby caused increased muscular impotence. I think I am right in saying that in every case of writers' cramp that I have seen there has been an emotional factor. Those who have had the most obvious physical cause for their troubles have complained that their troubles are worst in the presence of others, and especially when they have been called upon for official signatures before official witnesses. Emotional natures are those which are most prone to suffer from derangement of educated actions. I have seen one case, and only one, in which I could not discover any cause, save an emotional one, for the failure in writing, and it is right to state that there was nothing objectively wrong with the handwriting, the patient merely stating that "he felt a difficulty." In two or three others, emotion, coupled with very trivial causes, such as alcoholism or slight neuralgia, had caused the difficulty, and in these patients again there was very little amiss with the writing. In two cases, rheumatic stiffening of one or other of the joints of the thumb had rendered certain combined movements impossible, and had thus destroyed the automatic character of writing. In two others, the troubles seem to have originated in stiffness of the shoulder and weakness of the deltoid (insidiously following rheumatism). In four cases a general strain of the arm had produced (through implication of the nerves) general weakness of many of the muscles. In one case paralysis of the ulnar nerve was the cause of the mischief; in another, weakness of the pronators from some cause occasioned the trouble, and in two others the failure of writing was the first indication of progressive muscular atrophy. In the remainder of my cases the difficulty in writing had been occasioned by excessive use of the pen, and had arisen for the most part in persons of energetic temperament who had written against time to accomplish some task. In these the failure of writing was undoubtedly due to chronic fatigue of some of the writing muscles. In the *Practitioner* for June, July, and August, 1873, you will find a full exposition of certain facts and theories connected with this subject. The main points insisted on are these:—(1) That, as pointed out by Sir Jas. Paget, "Rhythmic nutrition is a law of nature," and that, for healthy muscular nutrition, the periods of contraction must alternate with periods of repose. (2) If a muscle be subjected to too prolonged, too frequent, or too violent stimulation, whether natural or artificial, it certainly becomes exhausted. (3) Certain of the muscles used in writing are subjected to prolonged strain without the necessary intervals of repose; these are especially the muscles of pen-prehension (as opposed to the muscles of pen-movements), and consist of the intrinsic muscles of the thumb and fingers (first and second dorsal interossei, etc.) The muscles that poise the hand in its semi-prone position (the pronators and supinators) are also subject to prolonged strain. These strained muscles drift into a condition of chronic fatigue, and their possessor experiences a clumsiness whenever he has occasion to use them. Their contraction becomes weak, uncertain, and often interrupted by spasmodic action. Now, as soon as one muscle is worn out, another is employed to do its work; and thus it is that we account for the progressive nature of extreme cases of "writers' cramp." It is not uncommon to find that the scrivener first finds a difficulty with the forefinger, and can write only with the thumb and second finger; next he is obliged to grasp his pen tightly by means of the big flexors (which are ordinarily used for pen-movement), while the stroke-making is done by movements of the wrist or shoulder. These muscles in their turn give out, and at last writing can only be managed by fixing the pen to the hand or arm by mechanical appliances.

Now, immediately one small muscle—such as the first dorsal interosseous—fails, the act of writing ceases to be automatic. The attention of the scrivener is required, mental effort is necessary, and mental effort for the accomplishment of muscular acts means excessive stimulation of the muscles employed. When once the patient becomes conscious of his troubles, the disease is sure to spread rapidly; and, for the same reason, if he uses his left arm, it is sure to give out very quickly. In these extreme cases the patients invariably suffer from the acute pain of over-fatigue (sometimes accompanied by headache) whenever they attempt to write. The fatigued muscles will be found to respond less thoroughly to faradaism than the healthy muscles of the opposite limb, and the patient either finds that voluntary action of these muscles is next to impossible, or if possible, is very quickly arrested by fatigue. In my experience it is not true, as is stated in most text-books, that all acts save that of writing can be perfectly accomplished. It must be borne in mind that for the accomplishment of most acts we have a great choice of muscles, and hence muscular failure may be difficult to detect; but it will be certainly observed that all acts involving the affected muscles are either impossible or performed in a clumsy manner. The phenomena of writers' cramp vary somewhat. They generally consist of mere impotence, without evident spasm or paralysis. Occasionally, however, there is cramp in the fatigued muscles, and sometimes spasm of the muscles which are antagonistic to them is observed. One definite cause of spasm is undoubtedly faulty antagonization, and whenever we investigate local spasmodic action we must be careful to eliminate this cause.

Failure of writing-power must be treated according to the cause, which will in every case demand much patient investigation. For genuine "writers' cramp" dependent upon chronic fatigue, I have found the refreshing effects of the galvanic current of the greatest possible service, and I have had four extreme cases of patients who had exhausted all the usual remedies and had suffered for very lengthy periods, in whom rest and the use of the galvanic current, combined with a rhythmical exercise of the affected muscles, was productive of rapid and marked amelioration of the objective and subjective symptoms. This condition of chronic fatigue is to be found also in many of the "professional" ailments which are brought about by the excessive repetition of certain acts.

III. BLOOD DISEASES.

Rheumatic Markings upon the Teeth.

Dr. L. G. Noel, of Nashville, writes to the *Journal of Medicine and Surgery*, of that city, February, 1875:—

It is not our purpose to add another symptom to the long list accompanying every description of rheumatism; we only wish to call attention to one of its sequelæ, which has been much overlooked, and which we hope will serve to bring out an obscure part of its train of phenomena that may further the search after the primary physiological derangement.

These markings upon the teeth are seldom seen in acute rheumatism; it is to chronic cases that they belong, seldom appearing until after middle life is past. They most frequently appear upon the crowns of the teeth, though they are sometimes seen upon their buccal and labial surfaces. It is that condition of the teeth treated of in dental works as "spontaneous abrasion," and, by some, has been thought to be attributable to mechanical causes alone, though it is difficult to see how this opinion is maintained, in the light of attendant facts.

The abrasion often begins as decay in the fissures on the grinding surface of the molars and bicuspids, but instead of following the tubuli, and dipping deep into the interior of the teeth, these become closed by a calcareous deposit, as fast as laid open, and the decay spreads out into a wide saucer-shape. This cupping out of the teeth is not, however, confined to the molars and bicuspids, but commencing upon the cusps of the canines, and cutting edges of the incisors, as mere mechanical abrasion, their asperities disappear, the teeth become square and polished on end, and presently the surfaces begin to assume a concave, instead of their original convex, appearance. This cupping out may go on until the pulp is so nearly reached as to become irritated, to the point of inflammation and death; but usually its irritation is only sufficient to cause a deposition of secondary dentine on the interior of its chamber, a part of its substance forming a matrix in which the lime-salts are deposited. Thus it is accommodated to its narrowing domicil.

In this way the teeth continue to shorten, until they are almost level with the gums, unless the progress of the abrasion is arrested by the dentist, which end he accomplishes by capping them with gold.

The polished surface always maintained by these abraded teeth, together with the fact that the trouble most frequently begins with the cutting and grinding surfaces, has led many to suppose it to be due entirely to mechanical causes; but the facts that it does appear upon the buccal and labial surfaces, which are not thus exposed to friction, and that it here presents the same polished and cupped characteristics, are difficult to reconcile with the mechanical explanation.

Then there are two other questions which it does not answer, viz: How is the abrasion kept up in the bottoms of the cups, when they cannot be reached by any portion of the antagonizing teeth? And, Why does not the gold wear away, when it is used to cap them? It is a well-known fact that capping with gold does arrest abrasion, and that a capping of gold will last much longer than an equal thickness of tooth-substance upon the same tooth. It is clearly because the gold is not acted upon by the acid secretions which are destructive to the teeth. The abrasion may commence as mechanical attrition, but it is kept up by chemical action.

Now the fact most interesting to the medical man is, that this condition of the teeth is nearly always found in the mouths of confirmed rheumatics, and, as has been already remarked, it is a concomitant of chronic, rather than of acute, rheumatism. What we want to arrive at, before we can intelligently treat any disease, is the primary aberration from true physiological action. A hasty review of the various and opposite treatments proposed for rheumatism, is sufficient to convince any one that the pathology of the disease is not well understood. Some have pronounced it an inflammation of the arteries; others have thought the nervous system the prime seat of trouble; some contend that the derangement originates in the blood, and others that it arises in the lymphatics. Now let us see if this abraded condition of the teeth, in the light of other phenomena, does not throw some light upon the subject.

The abrasion is clearly due to the action of an acid, oral fluid, and a litmus test always verifies the truth of this conclusion. M. Andral has shown that there is always an altered condition of the blood in acute rheumatism, and it is clear that the aberrations from normality in this fluid will be great or small in proportion as the attack is mild or violent. In the acute form of the disorder, the blood exhibits a thick, buffy coat, when drawn into a vessel, and the fibrin is largely in excess of the normal standard. Andral found, in one instance, 10.2 parts of fibrin in 1000 against the healthy standard, which is 3. The perspiration, which pours freely from a hot skin, has an acid odor, and the urine contains large quantities of uric acid.

On Hydrophobia.

In a review of a work on this disease by M. Bouley, in the Chicago *Journal of Nervous and Mental Disease*, January, 1875, it is stated:—

Among the disorders that may be confounded with hydrophobia in the dog, M. Bouley mentions epilepsy, which during the attacks bears a close resemblance to it in some cases; the disturbance produced by the stoppage of a bone or other substance in the throat, the acute intestinal affections, and worms in the intestines or in the frontal sinuses. The important question whether the dog is subject to a disease or to diseases similar to hydrophobia in their symptoms, but not virulent, he does not venture to decide. All that can be said according to him is, that certain observations rather indicate that this may be the case.. In this connection, he mentions the epidemic already alluded to, as described by Dr. Hayes, in the Arctic regions, and is evidently not decided in his mind as to its true nature. The distinction made by some English authors of a non-virulent rabies and hydrophobia, is not mentioned.

We wish that the author, while treating of this subject, had given us some opinion on the subject of mental aberration in dogs and other animals. We believe it does occur, and he gives an account of something of this kind in a horse, that came under his own observation. The subject seems worthy of investigation, and we would like to have the observation of so accomplished a veterinarian directed to it.

The preventive measures against the spread of the disease are next discussed. All the legal enactments that have been suggested, except the compulsory castration, are approved, but the means most efficacious, in the author's opinion, is the instruction of the public as to the signs and appearances of the disease, and the eradication of the false popular ideas upon the subject. He gives, therefore, a condensed summary of all the facts that have as yet been determined in regard to it, and we wish we could re-produce this here. Our space, however, will not permit this, and we are obliged to refer our readers to the original, until such time as they may be reproduced in English, in translation, or in substance in other works.

We are compelled to pass more rapidly over the article, under a different authorship, on hydrophobia in man, and can give attention to only a few of the many interesting facts which it contains. It is more exclusively a medical subject than the other, and in some of its relations, is more interesting to the physician; but we do not, therefore, consider it of more importance. It bears to it the relation of effect to cause, and the cause is in this case not less important, and perhaps in its details, even less generally understood by the profession. In many respects, the disease in man is similar to that manifested in the lower animals; and much of what has been said in regard to them, will also apply here. The contagion by the saliva is the same, and in the dubious character of the buccal lesions, there is also a similarity. The symptoms, however, are quite different in some respects; not more so, however, than might be expected in such different subjects of the disease. The symptom of hydrophobia which gives to the disorder its usual English name, is perhaps the most notable difference. The authors describe the different stages of the disease graphically and in detail, but we cannot follow them here.

In the remarks on diagnosis, they give some space to the consideration of the symptom of hydrophobia, as it may exist in other and often purely imaginary or hysterical disorders. This subject is, however, treated elsewhere in another volume of the *Dictionnaire*, and therefore, is not so much dwelt upon here; still they quote two observations from Barbantine and Trousseau, of a false hydrophobia succeeding the bite of a dog, and plainly due to the imagination of the patient. This, we believe, may, and does often happen; and to it are probably to be referred the cases of recovery from the developed disease that are sometimes reported. The other disorders that may be most easily confounded with the true disease, are tetanus and delirium tremens, more especially the latter, which frequently simulates it very strikingly. The remarks on diagnosis, it appears to us, might well have been extended, since so great a difference exists between the opinions of authorities; some writers having even gone so far as to deny the existence of any real disease being communicated from the dog to man, and attributing all cases to the imagination.

About six pages are given to the pathological anatomy and considerations as to the mode of action of the virus. In regard to the former, the authors conclude that only the secondary lesions of asphyxia are clearly demonstrated by the post-mortems; with respect to the latter, they hold that the poison, whatever it may be, acts principally on the medulla oblongata. They say:

"We may conclude, that although the excitation of the senses is general at the beginning of the attack, although it expresses itself by hyperæsthesia and various hallucinations; and while the convulsions may be general, the important phenomena characteristic of the disease and those that are always associated with it, the hydrophobic and the respiratory spasm, and the expression of terror, indicate that the medulla is the part of the nervous system on which is concentrated the action of the rabid virus."

The remainder of the article is devoted to the treatment of the disease, both the prophylactic measures and the general and moral measures, to be employed after the development of the disease. Only the first of these is hopeful; immediate suction or excision of the wound, cauterization by the hot iron or concentrated sulphuric acid performed in the most thorough manner, directly after the reception of the bite, are among the most promising, and seldom fail. The general remedies advised at this stage are almost innumerable, and are alike inefficacious; only two—mercury and sweating—are considered at any length. After the disease has fairly declared itself, many remedies have been proposed, and are noticed in this article: narcotics, baths, injections of water into the veins, hydrocyanic acid, chloroform, electricity, inoculation with serpent venom; all alike seem either useless or only very imperfect palliatives in this terrible affection. Nor does it appear probable that anything will be found in the near future, that will give us the mastery over it.

Enlargement of the Spleen.

In the *Berliner Klinische Wochenschrift* quoted in the London *Medical Record*, January 6th, Dr. Birch-Hirschfeld, of Dresden, remarked that formerly attention had been directed to enlargement of the spleen in malarious diseases, and in enteric fever, but not in other maladies. Of late it has become more and more evident that acute tumefaction of the spleen occurs in a number of infectious diseases, as, for example, in relapsing fever, and, as pointed out by Weil, in recent attacks of syphilis. Friedreich has even proposed to utilize the splenic tumor as a means of establishing the infectious nature of certain diseases hitherto considered as simple local affections [many forms of pneumonia, coryza, angina, etc.] The speaker had already brought before the Leipsic Natural History Society experiments on the behavior of the cells of the splenic pulp with finely divided substances introduced into the blood-mass. Since then he had endeavored, with the anatomical and pathological materials at his command, which were somewhat extensive, to furnish some foundation for the statistics of splenic tumors. Clinical observations by themselves are not always trustworthy, because even experienced observers may easily make mistakes as to the percussion-limits of the spleen. In order to judge of the dimensions of the normal spleen, the bodies of sixty persons, who were suicides, or who met with violent deaths, but were otherwise healthy, were taken as standards. The average weight of the spleen was 150 grammes (4¾ ounces nearly), equal to 0.26 per cent. of the body weight. In 145 other cases, under fifty years of age, the result was not very different, namely 140 grammes (4½ ounces or 0.27 per cent. (*sic*). Above sixty years, the weight of the spleen, like that of the body, decreases considerably, being 99 grammes (℥iij ʒjss), or 0.23 per cent. of the body weight. Birch-Hirschfeld distinguishes between the etiology of primary cases of enlarged spleen (in leucæmia, and in bodies appearing otherwise healthy, dependent upon hypertrophy of the pulp and Malpighian corpuscles), and secondary cases. To the latter belong (*a*) splenic tumors dependent on blood-stasis (considerable enlargement from uncompensated mitral insufficiency; spleens a little above normal in insufficiency of the aortic valves; finally, the pretty constantly occurring enlargement accompanying cirrhosis of the liver); (*b*) splenic tumors through amyloid degeneration; (*c*) those which occur in infectious diseases. In enteric fever the spleen-tumor is generally most marked in the second or third week, and disappears in the fifth week. He confirms Friedreich's observation, that the spleen is enlarged during the period of incubation. In the common form of variola, when fatal, there is no enlargement of the spleen. He includes the splenic tumors found in some forms of pulmonary tuberculosis amongst those caused by septic infection; the tumefaction of the spleen occurs in cases where the walls of cavities afford a surface favorable to absorption, especially where sudden ulcerative breaking up of the lung is brought about by purulent bronchitis. Comparison of metastatic pyæmia in the wounded and in puerperal cases, and of phlegmonous and gangrenous diseases of wounds without metastatic formations, with the phlegmonous simple peritonitic form of puerperal fever, showed this analogy, that the rule is to find a splenic tumor where there is metastatic infarction, or where infectious thrombi can be demonstrated in the course of the circulation; but where only phlegmonous processes are discoverable, the splenic tumor is hardly ever found.

IV. LOCAL DISEASES.

(*a*) DISEASES OF THE RESPIRATORY ORGANS.

The Treatment of Pneumonic Abscess.

The Dublin *Journal of Medical Science*, January, 1875, contains the annexed case, reported by Dr. FINNY:—

Margaret F., aged forty-five, a married woman, having several children, the youngest ten months old, was admitted on the 14th of April, 1874.

She had suffered from cough, profuse perspiration and debility, for six weeks, becoming each day weaker and more emaciated; and yet up to the last week she continued to nurse her baby. She was so weak on admission as to be hardly able to walk up stairs to the ward, while the black circles round her eyes, the rapid movement of the alæ nasi, combined with her emaciated appearance, told too plainly of some great drain on the system, and the probability of extensive lung disease. This assumption, the pulse (140), the high temperature, amounting to 104.2°, and physical examination, further confirmed. The latter showed advanced disease in the right lung; for, from the angle of the scapula down to the base, there was comparative dulness on percussion, and slight tubular breathing, while anteriorly very little air entered the upper lobe, and at the nipple, crepitus, coarser than that of the first stage of pneumonia, and in character more resembling that of crepitus redu was heard. On the left side there was compensatory respiration. It was only to evident that the lung tissue was breaking down. As she complained of diarrho and of profuse night sweats, I put her upon sulph. quiniæ and dilute sulphuric aci the diet consisting of milk and lime water, beef-tea, and eight ounces of wine.

For the first week after admission there was little change in the symptoms, exc that the bowels were checked, while the pulmonary mischief seemed on the incre as coarse crackling râles were heard at the angle of the scapula; and the ri clavicle became comparatively dull on percussion. Pain was now complained under the right breast, and in this place pleuritic friction was discovered; expectoration was more copious, and muco-purulent.

The temperature continued high, ranging from 100° to 103°, the evening tem ture being usually higher by 2° than the morning. There was, however, no regularity as one finds in the thermometric observations in enteric fever. The ranged from 100 to 120, but with less difference between morning and eve Respirations from 36–44.

As soon as the temperature came down to 101° in the evening, and the to (which, on admission, was clean, glazy, and dry, with extremely prominent pa became at all moist, I put her upon cod-liver oil three times a day, followed sixth part of the following mixture:—

℞ Acidi phosphorici dil. ♏. 60.
Liq. strychniæ. ♏. 30.
Tinct. aurantii *f* ℥ ss.
Aquæ flor. aurant. ad. *f* ℥ vi.
M. ft. mistura.

The acid and strychnia prevented any sickness following the oil. Wine to was daily administered

On May 1st, a fortnight after admission, the report showed improvement:

"Aspect improved; the black circles round the eyes less marked; cough better nights, with much less perspiration about the head and chest; bowels re expectoration less in quantity, and that only in the morning; respiratory more natural in affected side, 32 in the minute; pulse 90; temperature 98.2° morning, and 98.6° in the evening.

"The subclavicular dulness is less evident, and, though the lower is still is limited to an area of 1½-inch square at the inferior angle of the scapula, wh coarse, crackling râles, which were audible on inspiration in this place, have way to a more clicking sound, conveying the impression that it was dry in cha and that the mucus was thick and scanty.

"To continue the cod oil in increased doses, and the acid mixture, subst hydrochloric for phosphoric acid."

From this time to the end of May she steadily progressed, more solid food given her as her appetite improved, and as she was able to bear it; her appe and general condition also improved, so that she gained flesh and strength, and ten years younger than when she sought admission.

She left hospital on June 6th, after a stay of seven weeks and a half, cured attack, although with an impaired and injured lung.

The following note was taken a day or two before she left:

"Pulse 80; temperature normal; respirations 24; tongue clean; no no perspirations; appetite very good; no perceptible difference on percussion clavicles; dulness at inferior angle of scapula, less evident and limited to corresponding to a five shilling piece; breath-sounds absent over this spot, normal elsewhere. The wine has been omitted and porter substituted the last ten days. The oil and acid mixture have been steadily persevered in."

Remarks.—No case came under my care, during my months of clinical duty in the hospital, which gave me more real pleasure and satisfaction than the foregoing. The prognosis on admission, and for many days after admission, was of the worst nature; it seemed quite hopeless to expect she could live more than a few weeks. The breaking down of the lung in the lower lobe, the extension of pneumonic process to the apex, the copious expectoration, the great exhaustion and emaciation, the profuse perspiration, and the diarrhœa, all combined, sufficed to make me expect a rapid and fatal termination. In this I was fortunately mistaken. Rest, good air, judicious and supporting diet, and, as soon as the stomach could bear it, the constant employment of cod-liver oil, did wonders in this case. The abscess diminished in size; its contents became less; the extension of caseous inflammation was arrested; the diaphoresis was checked; sleep was procured; strength returned; and, when she left hospital, she had gained in flesh and weight.

This case is the more interesting, as it is just one of those cases which, some years ago, would have been set down as quite incurable, I might say necessarily so, as the result of the views which were then held respecting the nature of tubercle and its *deposition* in the lungs.

To Niemyer and Dr. Williams is due the credit of plainly showing how many of such cases, by timely and judicious treatment, may be arrested in their progress to a fatal end, and how life may be prolonged in comparative strength and vigor for many years.

The employment of a mixture containing an acid and a vegetable tonic, with small doses of strychnia, immediately after the cod oil, I adopted from Dr. Williams, and I can bear my testimony to its efficacy in many similar cases in aiding the stomach to a tolerance of the oil.

To the tolerance and constant use of this oil I attribute very much of the success in this class of cases, and I can fully corroborate the statement of Dr. Williams, that in order to obtain the greatest benefit from the cod oil, it should be persevered in regularly and for a sufficient length of time; for months, even for years.

The Temperature in Phthisis.

On this subject Dr. C. T. Williams read an article given in *The Doctor*, March, 1875:—

A clinical and pathological account was given of one hundred and four consumptive patients, inmates of the Brompton Hospital, and, therefore, subjected to the same equable atmospheric and hygienic conditions, in all of whom the temperature was taken at least five times, and in many of them seven, ten and twelve times daily, for periods varying from seven to thirty days. The patients were sixty-three males and forty-one females, embracing all acute and chronic forms of the disease except acute tuberculosis. The temperatures were taken for the most part in the axilla, and in some instances, for comparison, in the mouth, by the clinical assistants and by Dr. Williams himself, with thermometers manufactured by the best makers. These observations amounted in number to between four thousand and five thousand. To ascertain more fully the exact thermometrical phenomena of the disease, and especially the night changes, in twelve cases an hourly record was carried out for twenty four consecutive hours, and in some instances it was repeated for a second similar period. The state of the pulse, respiration, skin, bowels and urine was likewise noted; as also the time of meals and the amount of food taken. The cases are classified in the following manner, according to stages: 1. First stage, active (where formation of tubercle was taking place); 2. First stage, quiescent; 3. Second stage, that of softening; 4. Third stage, active (with increasing excavation and tuberculization); 5. Third stage, quiescent (or chronic cavity). The results of the analyses under these headings were then given, and the temperature at each of the hours of observation, viz., 8, 10 and 11 a. m., 2, 5, 8, 10, 11 and 12 p. m., as also the intermediate day temperatures occasionally taken and the night observations. The media, maxima and minima of each stage were stated, and tables and charts were exhibited to explain more fully the method of calculation and the results arrived at. The influence of the states of consolidation and of tubercle formation, of softening and of excavation, as well as extension of disease, on the temperature, were dwelt upon, and illustrative instances of each given; the pathological state being proved in many cases by post-mortem examinations.

The chief conclusions as to the diurnal temperature of the disease were as follows: In a large number of chronic phthisis cases, the temperature is normal or subnormal, sometimes falling to between 93 deg. and 94 deg. Fahr., a continuity of low temperatures being most marked in the first and third quiescent classes. In pyrexial cases, the temperature is seldom very high, 104.6 deg. Fahr. being the highest recorded. In the majority, a marked rise takes place after 2 p. m., and a rapid fall occurs after 10 p. m., which continues throughout the night, until its minimum, sometimes as low as 94 deg., is reached before 7 a. m.; a slight recovery is then perceptible, the normal being seldom, however, attained before 9 or 10 o'clock. This temperature wave may be shifted a few hours, the rise taking place later in the afternoon, the high temperature being maintained farther on into the night, and the lowering consequently delayed by some hours. Any continuous rise of temperature is followed by a certain amount of collapse, though not always to a corresponding degree. The disease in all its stages shows the post meridian rise and the nocturnal fall, with the early morning collapse temperatures; and that the latter is a characteristic of phthisis is proved by Dr. Williams' observations on a healthy man (placed under similar conditions to the consumptive patients), in whom the night temperatures did not fall materially below the day ones. The first stage exhibits a more gradual rise and fewer extremes of temperature than the third. In the third stage the temperatures are the highest and the lowest, both afternoon pyrexia and nocturnal collapse being most strongly marked, the one having been know to rise to 104 deg. Fahr., the other to sink to 93 deg. Fahr., thus exhibiting a range of 11 degrees. The second stage shows intermediate thermal features between the first and third stages, active. Tubercle may form, and the various processes of lung-disorganization may proceed uninterruptedly without apparently causing any considerable rise of temperature, and may even be accompanied by a subnormal temperature, this being probably due to the collapse influence on the constitution. Many of the variations in the phenomena are to be explained by the formation of pus, the liquefaction of adjoining tissues, the imprisonment of the purulent and caseous compounds, and their subsequent evacuation by expectoration. Phthisis has a distinct temperature course, marked on account of these changes, by great intermissions; but the idea that in each case it depends on individual idiosyncrasy is founded on imperfect observation. In all cases, two principal agencies appear to determine the temperature course: first an excessive action of the natural processes by which the body heat is maintained secondly, the influence of collapse, proceeding from the well marked weakening of the constitutional powers in phtisis. These two agencies are continually struggling for the mastery, and the result of this conflict is the temperature course of the disease. The influence of the first is seen in the rise in the afternoon and evening, well marked in the active forms of all three stages, and regularly recurring day after day for long periods; the influence of the second was shown in the rapid nocturnal fall and low temperatures of early morning; the collapse influence was also seen in the subnormal day temperatures, occasionally occurring in all stages of the disease, and even where the active processes of lung tuberculization, of softening, and of excavation may be taking place. It is, however, chiefly noted in the quiescent forms of the first and third stages. When low temperatures accompany active forms of the disease, it is probable that the collapse influence is stronger than the pyrexial, and, therefore, masks it. When the chart shows occasional fitful variations, these agencies are, perhaps, evenly balanced, and may alternately prevail, as is witnessed in the end temperatures of consumption; and to these derivations, noticed in advanced cases, may be ascribed the prevailing, but erroneous opinion of phthisis having no definite temperature courses. The author concluded with a careful comparison of weights of the above patients, with their temperatures, and made some deductions therefrom.

On Laryngeal Phthisis.

This is the subject of a paper in the St. Louis *Medical and Surgical Journal*, January, 1875, by Dr. Wm. Porter. He says, speaking of its frequency:—

In 100 cases which were examined, 60 were males. This is opposed to the general idea, that phthisis is more common in the female. But other statistics show the same; in the Royal Infirmary of Edinburgh, for instance, in 3 years, 185 cases were males, and 112 females. This is the more indicative, when we remember that in England, where these statistics were compiled, the ratio of the males to the females is much greater than in the United States.

The average age of the men was 35 years, and of the women 30; the number of both, in the third decade, being greater than in any other. From 20 to 30 there were 29; from 30 to 40, 23; from 10 to 20, 19; from 40 to 50, 19; and from 50 to 60, 10.

With regard to the lung affected, there seemed to be no fixed law. In these cases in 45 per cent. the disease was in the right lung, in 40 per cent. in the left, and in 15 per cent. both lungs were diseased.

In 21 of the 40 women was there a history of hereditary disease, and in but 12 of the 60 men—that is in 80 per cent. of the men, and in less than 50 per cent. of the women, was the disease acquired. Without doubt this was due to the greater exposure of the former to those influences that are thought to produce phthisis. Dr. Hughes Bennett has frequently pointed out, that among 6 or 8 cases at one time present in his clinical wards, not one could be traced to hereditary causes, and he says in his article on phthisis pulmonalis, in Reynold's Medicine, "Although there can be no doubt that weakness in parents is a source of weakness in the offspring, we are of the opinion that it is by no means so general or influential a source of phthisis as is usually supposed."

But that which most interested me, was the relative frequency of the laryngeal disease.

I mention briefly the symptoms of phthisis, when developed in the throat.

At first in a typical case, there is to be seen only a chronic hyperæmia, as it were, of the mucous membrane covering the larynx, not so marked as in laryngitis, nor so extensive.

Afterwards there is more or less thickening, especially about the ary-epiglottic and intra-arytenoid folds. These parts now look somewhat paler than before, and seem infiltrated with a dense consistent substance. The swelling especially about these folds is eminently charcteristic. Mackenzie calls it pyriform.

In many cases the ary-epiglottic fold is swollen, so that it bulges out towards the median line, like a small cylinder, tapered at each end, covering the vocal cord almost out of sight.

I have never yet seen a case, where this appearance could be distinctly seen, that did not prove to be of tubercular origin.

Soon afterwards the epiglottis becomes thickened, and the mucous membrane is dotted with little white isolated spots, small glands whose retained secretion distends and is seen through the mucous membrane covering them.

Ulceration beginning at these points, extends into the surrounding structure (if the patient survives the advances in the lungs long enough), accompanied by difficulty of swallowing, dysphonia, and sometimes complete aphonia.

These are the progressive symptoms in a typical case. However, it must be remembered that, in many cases, the laryngeal disease does not reach through all its stages, and even where well developed, varies in its intensity and rapidity.

Nay, more, in some cases these symptoms are entirely absent, and in place of the hyperæmia to be seen at first, is there a marked enæmia, which Semeleder and others think characteristic of incipient phthisis.

In 57, or more than one-half of these 100 cases, was there laryngeal complication. Sometimes it was the most prominent and distressing symptom, and again it was insignificant as compared with the pulmonary. But it was interesting to find, in such a large proportion of cases, evidence of disease in the larynx. In seven of the cases the first evidence of phthisis was in the larynx. I use the word evidence, that I may not be understood to say, that the disease was *developed* primarily here. The fact that pulmonary disease soon followed, would not indicate this.

From the testimony of these cases I wish to urge the importance of the laryngeal symptoms in the diagnosis of phthisis, and rest my argument on the inferences: 1st. That the larynx does become turbercular; 2d. That it is affected in a large number of cases of pulmonary tuberculosis; and 3d. That the symptoms of a typical case of phthisis in the larynx are well defined. That the larynx plays a prominent part in phthisis is evident, as also the fact that the symptoms there arise from a like cause as do those in the lungs. So seldom does it happen that the larynx alone is involved that Cohen discards altogether the name laryngeal phthisis, substituting the term "the chronic laryngitis of phthisis." I can see no reason why tubercular action in the larynx should not be called laryngeal phthisis, just as in the lung it is called pulmonary phthisis.

One word in reference to the presence of tubercle in the larynx. Rokitansky says tubercle is deposited in the form of gray granulations in the sub-mucous areolar tissue, or infiltrated as yellow caseous matter, beneath the mucous membrane. Marcet says he has witnessed a number of cases of thickening and superficial softening of the larynx from tubercular deposits, and Guy and Harley speak plainly of tubercular infiltration in the larynx. Mackenzie and others say they have never seen the gray granulations in this position. But although there is a difference of opinion, as regards the actual deposits of the characteristic form of tubercle, and if it is found in the larynx it is only in rare cases, there can be no doubt that the disease here closely simulates that in the lung. The low form of inflammation in the beginning, the deposits following, the thickening, at last the ulceration and breaking down; its coincidence with the pulmonary disease, and its progressive nature, alone would make a strong case. But there is one thing more. I found that the thickening took place most rapidly when the process of deposits in the lung was at its height—pointing, I think, to the conclusion that the thickening here, and the deposits there, partook of the same nature and came from the same cause. If it is true "that tubercle is essentially a coagulated exudation," the result of "a special constitutional condition, either inherited or acquired," and the causes that produce laryngeal phthisis are the same as those that give rise to other laryngeal affections, *plus* this condition; if the disease in the throat follows closely that in the lung, arising from the same causes, and alike progressive; if, in addition, it has characteristics peculiar to itself, and agreeing throughout with the known laws of tubercle, there can be but one conclusion.

I am strongly of the opinion that the thickening and subsequent ulceration in the larynx are due to the same action that is seen in the lung, modified only by the difference in structure of the affected organs.

The larynx is affected in a large number of the cases of pulmonary phthisis. This is the experience of most physicians. Louis records that over twenty per cent. of his cases of phthisis had ulceration of the larynx. Drs. Scott-Alison, Marcet, Cotton, and many others, speak particularly of the frequency of the laryngeal complicating the pulmonary disease; whilst, last and least, I would add the testimony of these one hundred cases, in which fifty-seven had laryngeal symptoms.

The last point I wish to make is that, in many cases, the laryngeal symptoms are characteristic and well defined. Of these, the pyriform swelling of the ary-epiglottic folds is the most valuable in a diagnostic point of view.

Diphtheria and its Treatment.

At the conclusion of an article in the *Lancet*, January 16, 1875, on this disease Professor George Johnson, M. D., says:—

I now come to the consideration of that which is the end and object of all our etiological and pathological inquiries—I mean the *prevention and cure of disease.* Certain general principles of treatment appear to follow directly upon what has been said of the pathology of diphtheria. The infecting properties of the local exudation in the throat at once suggest the use of disinfectant applications to the false membranes, and I find a general concurrence of opinion amongst those who have seen much of the disease that such applications are attended with very beneficial results. The object to be attained by these remedies is so to change the morbid exudative material that it shall lose its infecting properties, whether these be exerted by being absorbed through the lymphatics or by passing on into the air-passages. The substances which have been most used for this purpose are solutions of chlorine, of permanganate of potash, and sulphurous acid. I believe that these are all useful applications, but, on the whole, I give the preference to the chlorine preparations. Mr. Salter, whose practice in cases of diphtheria I know to have been successful to a very remarkable degree, relies mainly upon "large and frequent doses of tincture of perchloride of iron, a disinfectant gargle of chlorinated soda, and abundance of liquid food and stimulants, especially port wine," which he believes to be better than brandy.

Mr. Thomas Stiles, who has published an interesting account of a violent epidemic of diphtheria at Pinchbeck in Lincolnshire, mentions as his chief remedies the local application of Beaufoy's solution of chlorine, chlorine gargles, and the internal use of tincture of perchloride of iron. The more I have seen of diphtheria the more convinced I have become that, as in cases of cutaneous diphtheria, so in the more common internal form of the disease, local medication is of primary importance; and I believe that much of the good which appears to result from frequent doses of the tincture of iron is due to its local action on the fauces in its passage to the stomach. Moreover it seems to me not improbable that, apart from its general stimulant and sustaining influence, the superior efficacy of port wine, as compared with brandy and other kinds of wine, may be partly due to its local astringent action.

I am convinced that the application of strong irritants to the throat is as injurious as the application of leeches or blisters to the skin, and for the same reason—namely, that any breach or abrasion of the mucous or cutaneous surface opens a door for the more ready entrance of the poison.

When the exudation has extended into the air-passages it is of course beyond the reach of gargles; but a chlorine or a sulphurous-acid solution may be applied to the larynx by means of a bent brush, and the inhalation of disinfectants in the form of vapor or spray may still be useful. For this mode of application I believe the sulphurous-acid spray is preferable to that of chlorine, in consequence of its being less irritating to the lungs, though much, of course, will depend on the relative strength of the solutions. My friend Dr. Joyce, of Cranbrook, writing to me some months since, stated that he had successfully treated his last five cases with sulphurous-acid spray and large and very frequent doses of perchloride of iron; and he ends by saying, "I shall always for the future try the spray."

Whatever local remedies are employed should be applied frequently—every hour or two if the patient's condition admit of it—the object being to disinfect the poisonous exudation as soon as it is formed.

When, in consequence of laryngeal obstruction, the question of tracheotomy arises, it is well to bear in mind that, by the prompt and early performance of the operation, we may, in a manner already explained, prevent that extension of the exudation to the air-passages which renders the late resort to tarcheotomy an utterly hopeless proceeding. One remarkable but very common result of tracheotomy is so great a loss of the reflex excitability of the larynx that liquids are often permitted to pass through the glottis during the act of deglutition. This may be to some extent prevented by closing the orifice of the canula while the patient is in the act of swallowing.

In all cases of diphtheria frequent supplies of liquid nutriment are necessary, and in a very large proportion of cases, a liberal use of stimulants is required.

When deglutition is difficult or impossible, as sometimes happens in consequence of the condition of the throat, every practitioner knows that a patient may be sustained for many days by nutritive and stimulating enemata. Once, in a case of perforation of the stomach, I fed a woman in this way for twenty-seven days, and she got quite well.

It is obviously important, for the sake both of the patient and the attendants, that the sick room should be thoroughly well ventilated. A neglect of this essential condition may lead to a relapse, or it may cause the extension of the disease to others. When there is reason to believe that diphtheria has been excited by the insanitary condition of the house in which the patient resides, it may b when possible, to remove him at once to another house, or to place him in a part of the infected house as far as possible from the probable source of the infection. Some years since I saw with Dr. Julius, near Richmond, a lady who was suffering from a second relapse of diphtheria, the disease having occurred a second and a third time before she had been thought well enough to leave home. Feeling sure that there was within the house an unwholesome atmosphere which prevented recovery, we had her placed, weak as she was, in a close carriage and driven to a friend's house in London, where her recovery was rapid and complete.

(*b*) DISEASES OF THE CIRCULATORY ORGANS.

On Angina Pectoris.

In a lecture reported in the British *Medical Journal*, December 26th, 1874, Professor Sée treated of angina pectoris—a disease well known, and, in general, easily recognized by medical men. Symptomatically and nosologically, he stated, the disease was perfectly defined, but its pathology was still involved in obscurity. Various theories have been propounded as to its pathology, which may be summed up as follows:—The theory known as the English theory, which is to the effect that angina pectoris is always the result of a lesion of the heart or large vessels; the old German theory, which attributes it to the gouty diathesis; and the French theory, which consists of a painful neurosis or neuralgia of the cardiac plexus of nerves, which neuralgia is sometimes idiopathic or spontaneous, sometimes symptomatic. M. Sée does not admit the existence of angina pectoris without a lesion, and would, therefore, be more favorably disposed to accept the English theory. The following case, which has presented itself in his ward, would seem to justify his preference for the English theory. A patient was admitted in October last with marked symptoms of anxiety and dyspnœa; the latter did not resemble the dyspnœa of asthma, nor that dependent on disease of the heart; notwithstanding the distressed state of the patient from the dyspnœa, the rhythm of the respiration was regular, without any appreciable disturbance in the act of inspiration or of expiration. The patient complained of the two symptoms characteristic of the disease, which in fact may be considered pathognomonic, particularly the second; viz., pain in the præcordial region and pain in the left shoulder. On auscultation, a *bruit de souffle* was heard at the base of the heart, and also, though slightly, at its apex. The paroxysms occurred at first at lengthened intervals; the intervals became gradually shorter, until at length he had five or six attacks a day, and finally the pain was almost constant. In the intervals of the paroxysms, there was not the slightest dyspnœa. The patient was free from dropsy or any sign of pulmonary congestion. He had nothing in fact that would lead one to suspect disease of the heart. Feeling somewhat relieved by his stay in hospital, he asked permission to leave; but he was not long out when he applied for readmission, and in three days after he was carried off in one of the paroxysms. The following is a summary of what was found at the necropsy: The heart was dilated and hypertrophied, particularly the left ventricle. The aorta was atheromatous, nearly cartilaginous; the atheroma caused a considerable swelling above the sigmoid valves. In consequence of this swelling, the orifice of the coronoid artery was extremely hard and contracted, it had lost its elasticity, and its calibre was reduced to nearly half its normal size. One of the principal carneæ columnæ of the heart was hard and diminished in thickness, which, with the dilatation of the heart, contributed to produce comparative insufficiency of the mitral orifice. Finally, the coronary artery was contracted throughout its length, and was even completely obliterated at a certain point of its course. This would explain the *bruits de souffle* which were heard during life. It is principally by the existence of this lesion that the mode of death in this case may be explained. The coronary artery not being able to convey a sufficient quantity of blood to the heart, the condition of the latter being in consequence considerably modified, it ceased suddenly to act; hence fatal syncope. The nervous system of the heart was not examined. As it is, the *post mortem* examination, though incomplete, is full of interest, and the case is worthy of more profound study, which M. Sée intends prosecuting with the aid of his able *chef de laboratoire*, Dr. Cornil.

Diagnosis of Fatty Degeneration of the Heart.

LEONARD H. J. HAYNE, M. D., Staff-Surgeon, Royal Navy, writes to the *Lancet*, January 9, 1875:—

Some years since, whilst serving as assistant-surgeon of Greenwich Hospital, when that noble institution was an asylum for our aged seamen and marines, amongst other diseases of old age I had the opportunity of seeing a number of fatal cases of fatty degeneration of the heart.

These cases were generally rapidly fatal, and were seldom much benefited by remedies. Stomach derangements, accompanied sometimes by constipation, but more generally by diarrhœa, were prominent symptoms in this fatal malady; frequent vomiting occurred in nearly every case which came under my notice, and seemed to me to be a sign almost pathognomonic of this disease, as will be seen from a glance at the following cases.

In one case, as general paralysis supervened, the vomiting and gastric irritation subsided, and never again returned. Enfeebled power of the heart and gastric irritation, with frequent vomiting, I consider are the most reliable symptoms of fatty degeneration of the heart; and we may always suspect fatty disease of the heart when these symptoms occur together in advanced life, associated, as they are sure to be, with more or less irregularity of the heart's action.

It is, I believe, pretty generally thought that the detection of this fatal malady in the living body cannot be made with confidence. "Slowness and feebleness of the pulse have been by some thought diagnostic" (*vide* Dr. J. H. Bennett's "Practice of Medicine," p. 585, third edition).

The arcus senilis, so far as my memory serves me, was so common amongst the aged pensioners who were admitted into the infirmary of Greenwich Hospital, that it was of considerably less value than might have been expected as a guide to diagnosis of fatty degeneration of the heart.

I do not know of the existence of any statistics bearing upon the point, but I think it is probable that fatty degeneration of the heart is far more common during the declining years of those who have passed the greater portion of their lives at sea than it is amongst aged persons who have always lived on shore. The very nature of a sea-life, the diet, the vicissitudes of climate, etc., may perhaps account for this.

J. S——, seaman, aged seventy-five, was under treatment in the infirmary of Greenwich Hospital from October 8th, 1854, to June 9th, 1855, for palpitation and dyspepsia, attended with frequent vomiting and epigastric pain, when he was discharged, much benefited by treatment. He remained tolerably well for nearly three years, but, in April, 1858, he again became an inmate of the infirmary, suffering on this occasion from paraplegia. He very quickly rallied from this attack, remaining well for a few months, when he again suffered from a similar attack, which gradually passed into general paralysis. He died on January 20th, 1859. During the whole of the time that he suffered from paralysis he had none of his former dyspeptic symptoms, his appetite being very good.

Autopsy, thirty-nine hours after death.—Heart very fatty, the fat taking the place of the muscular fibre; the walls of the right ventricle were almost entirely converted into fat; the valves were thickened, otherwise normal. The entire organ was enveloped in fat Stomach normal.

J. J——, aged eighty-one, seaman, was under treatment in the infirmary of Greenwich Hospital in June, 1856, for incessant vomiting and epigastric pain; bowels costive; relieved by treatment. Again, in October, 1858, had a similar attack, and was greatly relieved by proper diet, attention to the bowels, bitter tonics, and port wine. On February 12th, 1859, he was again admitted into the infirmary with all his old symptoms; he had great epigastric pain, and vomited after taking food; the heart's action was feeble and irregular, no abnormal sounds. By means of careful dietary, bitter tonics, and sinapisms over the epigastric region, he obtained some relief. On the 22d he had pains in the limbs, and on the night of the 25th he was very restless, complaining of pain in the præcordial region. On the following morning he died suddenly whilst eating his breakfast.

Autopsy, twenty-eight hours after death.—Pericardium distended with a large clot of blood, which entirely surrounded the heart; this clot weighed 12 oz.; the pericardium contained besides about 4 oz. of bloody serum. The clot was found to be attached to a point just anterior to the apex of the left ventricle, where there was found a rupture of the ventricular wall about one-third of an inch in extent. The ventricle was filled with a clot of blood continuous through the ruptured wall with the external clot. The structure of the entire organ was very fatty, the fat being infiltrated and taking the place of the muscular fibre; the left ventricular wall was greatly atrophied, and there were some recent adhesions between the pericardium and the heart around the seat of rupture. The heart weighed 13½ oz.; the size of the cavities was natural, aortic valves thickly studded with calcareous deposit, and the internal surface of the arch of aorta contained some atheromatous spots; mitral and tricuspid valves were thickened. The lungs were bound down to the ribs by old adhesions. Stomach contained some partially digested food, but its structure was healthy.

R. M——, aged sixty-eight, P.R.M., was admitted into the infirmary of Greenwich Hospital on February 13th, 1860, with dyspnœa, dry cough, loud systolic bruit, heard all over chest, but heard most distinctly at heart's apex, and on the right side between the third and fourth ribs. He improved under treatment, and entirely lost his cough for a time. I should state that his pulse was very feeble, and he suffered greatly from dyspepsia. The cough soon returned, and on March 17th he died suddenly.

Autopsy, twenty-nine hours after death.—Heart enlarged; structure friable; aortic semilunar valves completely destroyed by ossific deposit, which dipped down into the ventricle, encroaching very considerably upon its cavity; all the other valves were healthy; heart's structure and muscles of body were in a state of fatty degeneration; spleen soft; other viscera healthy.

Although these cases are too few in number to be of much use for statistical purposes, still they all point in the direction of certain symptoms being diagnostic of fatty degeneration of the heart—viz., feeble and irregular or intermittent pulse, dyspeptic symptoms, epigastric pain, frequent vomiting (more especially after taking food), and diarrhœa.

(c) DISEASES OF THE ORGANS OF DEGLUTITION AND DIGESTION.

Chronic Gastralgia cured by the Nitrite of Amyl.

W. H. FORREST, M. D., of Florence, Italy, writes to the New York *Medical Journal*, February, 1875, the following case:—

Emilio S., aged thirty-three years; married; cook; a native of Italy. Previous history unimportant up to February, 1871, when his present illness began. Patient was exposed during several hours to excessively bad weather, being under the peculiar excitement incident to the Italian Carnival. In the evening he lost his voice entirely, and several hours elapsed before he regained it. A few hours after the inception of this symptom, he was seized with an exquisite pain in the epigastrium, it being limited to that region. It is impossible to attribute the pain to any of the ingesta of the day, as he declared he had not departed from his usual diet, and his subsequent history confirmed the statement. This attack, as well as the subsequent ones, was not attended with vomiting of any kind. The only further symptom was complete suspension of the functions of the stomach. Food of any kind would remain in the stomach for hours without increasing the distress, and without undergoing any of the alterations incident to digestion. This latter fact was found to be true by the patient, who frequently caused emesis in the vain hope of relieving the pain. Absorption by the organ was entirely checked, as was found by the non-action of medicines of all kinds. Constipation sometimes obstinate, then again absent. The duration of the spasm varied, lasting from three hours to as many days.

Patient has had, from date of inception of the malady, through the intervening forty-two months, repeated recurrences of these attacks, but with slight variation in character from the first. Has always been utterly unable to assign any cause for the attacks, which came on at irregular intervals of time, greater or lesser; some three days, others a month in extent. The approach of cold weather was every year the sure prognostic of an aggravation of the spasm. The diagnosis of neuralgic spasm of the stomach was made by the Italian Faculty, and large quantities of various medicines were given, in which were included about all the routine antispasmodics, anæsthetics, and narcotics of the Pharmacopœia. They all proved unavailing, owing in some instances to the fact that absorption did not follow their administration; in others, that the effect was but temporary. Hypodermic injections of a salt of morphia were at last resorted to, and proved effectual, affording no immunity, however, from recurrence of the pain. In some instances, as much as ʒiij of a solution, about equivalent to Magendie's, was required to give relief. I will not stop to enumerate the therapeutic agents of the Italian physicians, except to refer to one item. The poor fellow was subjected to the ordeal of taking, for sixteen consecutive mornings, a dose of castor-oil ℥ss and olive-oil ℥j.

I first saw patient early in September, 1874, and was unable to discover any organic disease of heart, lungs, or spine. No evidence of a tumor of any kind; and in fact, except in noting the presence of all the symptoms of chronic opium-poisoning, the examination proved negative. Shortly after, according to instructions, patient, while suffering from a spasm, came to see me, and again I was unable to discover any thing to modify the diagnosis of neuralgia.

I first tried the nitrite of amyl by inhalation, and, obtaining a slightly relaxing effect only, gave the drug by the mouth, in a dose of ♏ijss. The first method, although exhibiting most of the characteristic effects of the medicine, failed to stop the pain, which end, however, was obtained by the second, in precisely eight minutes. The patient walked off, declaring that he felt peculiarly strong. The spasm, thus cut short, remained absent for about twenty-four hours, but then returned in full vigor. The experiment was again resorted to in like manner as at first, the dose by the mouth being increased to ♏iijss. The pain ceased as before, but has never since returned to an extent sufficient to cause any thing but a slight annoyance. In order to relieve the sleeplessness of the opium-habit, chloral and bromide of potash have been given with good effect.

I made one attempt to remedy the anæmia from which he suffered, by a mild chalybeate, but desisted, and left his re-establishment to nature.

Patient has made rapid progress, and at the time of this report is well able to do light work.

Salicine in the Treatment of Chronic Diarrhœa.

Dr. John S. Hughson, M. D., of Sumter, S. C., says in the Charleston *Medical Journal*, January, 1875:—

In the *Medical and Surgical Reporter*, of February 1st, 1873, Dr. Mattison, of New Jersey, recommended salicine in obstinate and chronic diarrhœa. All cases coming under my care being easily controlled by usual remedies, the salicine treatment had almost escaped my mind, when, the 1st of last April, I was called on by a gentleman suffering from chronic diarrhœa, of nine months standing. He had, during the first part of this time, been under the care of a physician in an adjoining State, and not improving, he returned home and placed himself in the charge of a competent physician here. Months passing without any permanent improvement, he became weary and disheartened, and looking on life as a burden, and health as a thing to him ever in the future, to be unknown, he called to place himself under my care, with a faint hope for brighter days. I found, upon inquiry, that he was having from eight to twelve evacuations during each twenty-four hours, generally watery in their character, but occasionally a little blood and mucus. He told me that all the remedies commonly employed in these cases had been faithfully tried, without success. So, feeling that it would be useless to try again what had already failed, I resolved to treat the case with salicine, as recommended by Dr. M.; so prescribed:

℞. Salicine, ʒij.
Syrup, q. s. M.
Divide into pills No. 48.
Sig. Two to be taken every four hours.

And directed a continuation of sulph. zinc injections that he was already using. On the third day he called to report improvement; continued medicine as before; nd in a month's time he pronounced himself entirely well. The prescription had not been changed from the first day. I saw this gentleman a few days ago, and was told that he has had no symptoms of a return of the disease, and feels as well as ever in his life.

On the 4th of August I was called upon and informed that a lady from a neighboring town, some thirty miles distant, would (if possibly able to travel) arrive on the evening train on the 6th instant, for the purpose of placing herself under my care, and also hoping for benefit from a change of air and scene, and I was requested to see her as early as possible after her arrival. Accordingly, in the evening of the [illegible], I called at the residence of Mr. ——, and found Mrs. ——, an object pitiable, indeed, to look upon: from a beautiful, gay, and fascinating woman she had become changed to almost a skeleton, with wan looks, her eyes encircled by dark rings that gave in contrast to her otherwise pale features a truly ghastly look. Reclining upon a sofa, with the soft light falling upon her emaciated form, she looked as if grim death had indeed, as she declared, claimed her for his victim. She told me that for six months past she had been suffering from chronic diarrhoea of a most obstinate nature. Her medical attendant, an accomplished gentleman and physician, had, during the course of treatment, used various remedies without obtaining any permanent benefit. Her bowels acted from twelve to eighteen times during the twenty-four hours, very watery, and occasionally passed a little blood, the tongue clean, no appetite, no tenderness over the bowels, and but little pain at any time, but the constant drain upon her vital powers was gradually but surely wearing her life away. Diagnosing this as a case not so much of an inflammatory nature as of a want of tone in the muscles and lining membrane of the bowels, I prescribed:

℞. Salicine ʒi.
Strych. gr. i. M.
Divide into pills No. 48.
Sig. Take two every four hours, with [illegible]
and injection morning and evening.

Being despondent, I endeavored to cheer her by anticipations of a happy return in health and strength to the bosom of her family and the caresses of her little ones. On the fourth day there was decided improvement, there having been but two or three evacuations during the day and night, and those of a more natural character. At the expiration of a week, without any other medicine (with exception of a few doses of Co. Tinct. Cardamom for the relief of flatulency) she was able to walk about the house, her bowels acting but once during the twenty-four hours, and that action normal in color and consistency. Ordered the pills now to be taken only four times a day. Health and strength returning at the expiration of two weeks from the time of my first visit, I was able to pronounce the case cured.

The Rational Treatment of Dysentery.

Dr. J. W. Maddox in the *Nashville Journal of Medicine and Surgery*, March, 1875, after reviewing the pathology of this disease, says:—

What, then, is the most rational procedure in dysentery?

First, let us clear the intestinal tract throughout its whole extent with a dose of castor oil, with turpentine, or with a dose of salts, or with a mercurial cathartic. We have then rid the bowels of the feces, which, if retained, but add to the poisonous decomposition which is to take place if the disease progresses. Perhaps in the inception of sporadic dysentery, the one brisk purgative dose removing irritative ingesta, may restore function to the disordered viscera, and the patient may be relieved. *The restoration of disordered function is the key in the treatment of dysentery, as it is of all diseases.* Suppose the case progresses after the bowels are emptied, shall we resort to opiates, sugar of lead, and astringents, which is the common routine practice? If we do, the patient may get well, but it will be in spite of bad practice. Are these remedies calculated to arouse the liver to action—to unload and unfetter the mesenteric glands—to relieve the general congestion and unburthen the blood-making glands? Do we [illegible] restoring to physiological action the forces upon which she depends to defend the system against the invasions of disease, and to heal the ravages it has made? What remedies will meet the indications in dysentery best? Beyond question, if the disease is not checked by the purgative, ipecac in large doses, preceded by enough opium to make the stomach tolerant of its presence and to quiet peristaltic action, is the best remedy in our materia medica to arouse sluggish glands, to unload congested organs, to restore functions disordered by congestion; for its special therapeutic value is to arouse capillary circulation everywhere in the system, to determine activity of circulation to the skin, to drive the blood from centre to surface, to unload portal congestion, to give free functional action to all organs concerned in making blood, and with the reparation in blood-lesions comes healing and health.

We do not urge that this treatment is specific, or that it has an invariably favorable result—by no means; but that it is a rational expectation from this remedy in dysentery. I do not introduce this treatment to you with any claim for its novelty or its discovery. It is an old treatment, and an excellent one, endorsed by many of our ablest authors. I regret to say, however, that some of our recent authors on the Practice of Medicine do not mention it.

From reported results, several years ago Dr. Thos. L. Maddin, my associate in the practice of medicine, and I, were induced to resort to the ipecac plan of treatment in dysentery, in large doses, in a large number of cases, and with a success corroborating the high value placed upon it by the authors I have quoted, and so satisfactory to ourselves that I am bold to call the attention of the profession to this treatment, which, when pursued properly, will yield, in my humble judgment, the largest percentage of cures in this formidable disease, the scourge of military and of civil life.

The ipecac treatment must be conducted carefully, with strict attention to certain instructions, which I will mention.

First, the bowels should be relieved by a mercurial or a saline purgative. The patient should, if possible, take a warm bath of the entire body—at any rate, a hip bath—for fifteen or twenty minutes. He should then take his bed, and remain as quiet as possible. One grain of opium should be administered to an adult, which should be followed, in one hour, by from fifteen to twenty grains of ipecac, taken in pills, with as little water as possible, or mixed in slippery elm mucilage. The patient should not be allowed any water or other fluid for three hours, lest vomiting supervene; after three hours food should be administered, of proper character. The same treatment should be repeated every six hours, until three or four doses are given, or until the patient is relieved. In many cases no vomiting will ensue.

Usually, the stools, from being mucous-bloody, sero-sanguinolent, offensive, will, in twenty-four hours, be feculent, with bilious matters in them. You may look with a great deal of certainty, in the early administration of this remedy, for rapid improvement, such as you can accomplish with no other remedy within my knowledge or experience.

A few other points in treatment I would impress upon you as being of vital importance, which do not meet the careful attention they deserve. A patient with dysentery should never be permitted to get out of a horizontal position. He should not be permitted to get up to stool—he should invariably use a bed-pan. The sitting position causes gravitation and pressure of the inflamed bowel, and results in greater inflammation, tenesmus, and pain. We need absolute rest in all inflammations. A flannel bandage, wrapped with moderate pressure, assists materially in quieting peristaltic action.

One other point—In discussing the subject of the discharges from the bowels in dysentery, I remarked that they were composed of mucus, pus, fibrinous flakes, desquamative epithelium, scybalæ, lotura carnium, a mass of terrible putrescence, which, remaining in the intestinal canal, will continue to decompose and putrefy, contaminating the blood already depraved by disordered function of the processes of sanguification. Our duty, then, clearly is to get rid of it—wash it away with large warm-water enemas (as hot as can be borne), to which laudanum and bromo-chloralum may be added. This injection should be repeated every four or six hours and the patient should pass it off as soon as he desires, in a bed-pan. It will result in great comfort to the patient.

One other remark. We have shown you that, in the majority of cases of dysentery, the lesion is chiefly at the sigmoid flexure of the colon, and if the disease is progressing, extending up the descending colon. We can reach this part of the intestine by an injection thrown through an English catheter, of such solutions as that of nitrate of silver or of sulphate of zinc, which, by their alterative action, assist in healing ulcerations.

The ipecac treatment in dysentery is suited to all ages, and to almost every stage of the disease, even the extremest, where its effects must be carefully watched.

Treatment of Dysentery with Creasote.

Dr. J. R. Cushing says of this method in the Chicago *Medical Journal*, January, 1875:—

Upon adopting the creasote, in combination with opiates, I was happily surprised beyond all expectation. It accomplished everything and did it in a few days, as well as obviating that ugly *after symptom*, so distressing in my preceding cases. In obstinate diarrhœas I find the preparation equally as good as in the dysentery.

When ulceration of the rectum remained after the subsidence of the disease, I found the acetate plumbi, in combination with tinct. opii, used as enemas, all that was necessary; what was very strange, enemas of creasote did but very little good.

The following cases from my note book will illustrate my plan of treament:

Case I. A lady, ætat 26; sick two days before called in; had been taking teas, and laudanum. Found bowels costive, with great tormina and tenesmus. Sulph. magnesia ℥j, tinct. opii ʒj, water ℥vj. Tablespoonful every thirty minutes until it acted. Cold cloths to the perineum, and cloths saturated with the liniment, aq. ammon. ʒss, oil sassafras ℥ss, tinct. opii ʒj, tinct. arnica ʒj, ol. olive and kerosene; *aa* ʒij, kept constantly applied to the bowels. After the action of the salts, commenced the following formula:

℞.	Creasote,	gtt xx.	
	Acetic acid,	gtt xl.	
	Morphia,	gr. ij.	
	Aqua,	℥ij.	M.

Teaspoonful every two hours until relieved.

Well in three days.

Case II. Young man, 18 years; taken about six hours previous to my seeing him put him immediately upon the creasote mix. with the liniment; cured in thirty-six hours.

Case III. Gentleman, aged about 50 years; had been sick about four days; had been taking opium pills, with acet. plumbi; considerable tenesmus, with dejections of bloody mucus; great prostration; bowels tympanitic. Prescribed creasote mix. with turpentine stupes to the bowels; whisky ℥j, every three hours. In fifty-six hours the bowels were controlled. Creasote mix. every four hours; whisky, toddy and egg nog, pro re nata. Discharged cured on the fourteenth day.

Case IV. Lady, aged about 20. Cured on third day. Creasote mix. only used.

Cases V., VI., VII., and VIII., in one family, all down with hemorrhage of bowels; no tormina or tenesmus; great tenderness over the bowels, and irritable stomach. Creasote mix., turpentine stupes, and stimulants. All cured and discharged between seventh and fourteenth day. These cases simulated peritonitis, yet I am satisfied it was not that disease, for there was no inflammatory fever or other serious indications of that disease. The disease was evidently sub-acute inflammation of the lower bowels, with ulceration of the hemorrhoidal veins. My treatment proved efficacious in almost every instance. The simplicity of the treatment and the rapidity of cure, compared with the remedies I had previously used, demonstrated that creasote was an important adjuvant, in fact, the main one, in combatting the disease. I should have some hesitation in prescribing the remedy in acute disease accompanied with high febrile excitement.

In all diarrhœas that I meet with, my main reliance is in the creasote. In the treatment of the disease in children I substitute tr. opii camp. instead of the morphia, and lessen the dose according to age.

For the ulcerations in the rectum when they occurred, I used enemas of ulmus fulva and the acet. plumbi with tr. opii—½ʒ plumbi and gtt. xxv. tr. opii to about ℥ij of menstruum—every three, four or six hours, as the case required.

Suppositories in Dysentery.

A paper by Dr. J. H. Carstens in the Detroit *Review of Medicine*, February, 1875, contains the following cases illustrating dysentery cured with opium:

Frank H., æt. 15, was attacked with dysentery July 3d. This was during the height of the epidemic we have just passed. For him I prescribed one gr. of quinine, three drops of chloroform, and three drops fluid ext. ergot, every three hours. The bloody stools disappeared the next day, with but slight tenesmus the day thereafter, and in six days was entirely cured.

Henry O., aged three years, has had dysentery for two weeks; bowels moved every five minutes, the mother states. I had some suppositories made as follows:

℞.	Pulv. ipecacuanhæ	ʒss.
	Pulv. ergotæ	gr. xv.
	Quiniæ sulph	gr. iv.
	Ole theobrom	q. s.

For twelve small rectal suppositories.

I directed the mother to introduce one every two hours. The next day great improvement was noticed in the patient. I prescribed twelve more suppositories, which cured the child entirely by the second day, with no other treatment whatever but a good nutritious diet.

Charley K., aged two and one-half years, was brought to my office by his father, who gave the following history: The child had been suffering with a diarrhœa for some weeks, but in the last three days blood appeared in the stools, the child having, during the discharge, much tenesmus. I gave the father some of the above-described suppositories, to be used as before stated. Calling at the house next day, the mother stated that some of the suppositories were passed immediately after their introduction, and that they caused much bearing down pain. I directed that if a suppository was passed shortly after its introduction, another one should be used immediately, and that it should be passed high up.

This was done, and although some suppositories were passed, the others remained; the blood first disappeared, then the discharge diminished, and the child was well the third day.

Otto N., aged eighteen months, was suffering with dysentery for one week. Also in this case used only the suppositories, six of them curing the child.

M., aged eight months, was brought to my office by the mother. Had had dysentery for three days. I began using the suppositories, and the child was much improved the next day, but the day thereafter the child was worse, weak and fretful; frequent discharges, not of a dysenteric character, but thin and watery, such as we find in cholera infantum. Ulceration around the anus, the latter with deep fissures, surrounding part swollen and painful; for this ordered weak carbolic oil, prescribed mixture of pepsin, bismuth and brandy; the next day not much change, could not take mixture, so left out the brandy and only prescribed the powders. The mother did not return with the child, but went to some other physician, and I have heard the child died two weeks thereafter.

M. W., aged three years, was brought by her Polish mother to the Detroit Medical College dispensary. I learned that the child had had dysentery for three weeks; to-day had already twenty-five passages, with much blood and tenesmus. Began using suppositories at 2 p. m., and until the next morning at 10 o'clock had only two discharges, using a suppository every two hours. Continued suppositories until the next day, when the child was well.

Dr. J. P. Corcoran requested me to give him a few suppositories to try on a child under his treatment. I did so, and he furnished me with the following report of the case: Matthew H., aged ten months, just arrived from England with his parents. August 17, 12 m., I commenced using suppositories. Had forty-five discharges during the twenty-four hours preceding this date. August 18, at noon, little improved. Number of stools in twenty-four hours, sixteen. Continued using suppositories every two hours. August 19, only three stools of a natural color the last twenty-four hours. Patient discharged.

I must mention one more case: Charles H., one year old, dysentery for one week, not a very severe attack. In this case, also, used suppositories, one every three hours. The next day, after four had been used, child began to vomit, and had to discontinue using them. The vomiting ceased without treatment, and the dysentery had disappeared.

I could give the histories of more cases, but this is sufficient to show that by suppositories alone we can cure a good number of cases of dysentery. We may jointly administer remedies by the mouth, also, if necessary. In these cases, however, I used only the suppositories, to remove all doubt of what cured them.

Dysentery being an "infectious febrile disease," due to a specific poisonous germ, and quinine being the best remedy to destroy and neutralize the specific poisons, it ought to be good for dysentery. Ulceration being a prominent result of dysentery, as quinine diminishes ulceration, this is the remedy. Hemorrhage is a prominent symptom, and as ergot contracts the smaller blood vessels, and prevents hemorrhage, that is the remedy. Severe spasms and tenesmus being most complained of by the patient, and ipecac being most emphatically an anti-spasmodic, it is good for dysentery.

The proportions of these remedies in each suppository should be regulated by the symptoms. From these few cases I would conclude:—

1. That by means of suppositories we can cure dysentery.
2. That this is the most rational and scientific mode of treating this disease.
3. That children object less to their use than to nauseous drugs administered by the mouth.
4. And that probably quinine, ergot and ipecac, are the best remedies to use, at present at our command.

The Saline Treatment of Dysentery.

At a meeting of the Kentucky Medical Association, reported in the Richmond and Louisville *Medical Journal*, Dr. Jackson remarked:—

Though he had scarcely been in the profession long enough to be called an old practitioner, yet he had been in it long enough to have seen an entire revolution in the treatment of the disease under consideration. When he was a medical student, the standard stock treatment of dysentery was with calomel, opium and acetate of lead. When a doctor was called to treat a case of flux he rung the changes on these three remedies, and usually administered them at regular hours, day unto day, and night unto night, until convalescence set in or death closed his ministrations. This was the common treatment of the country, and as such, was taught *ex cathedra* by the professor, and daily practiced by the general practitioner. In those times when a man was pronounced to have *the bloody flux* his friends and family immediately became grave; for, if death did not enter the house, the rule was a long and tedious convalescence. He recollected, he said, very well how a short time after he had entered upon the practice of medicine, upon reading the report of a debate on dysentery in the Philadelphia County Medical Society, as published in the *Philadelphia Medical and Surgical Reporter*, he was struck (he might say shocked) by the treatment thus strongly recommended by Dr. Nebinger; for this gentleman, directly contrary to the accepted classical method of the day, dwelt forcibly upon the nearly invariable success in abating every acute case of dysentery he was called to by giving large saline purgatives, which, after having had a free effect, he followed by a dose of morphia. As diametrically opposite to the common treatment as this course was, yet it did not seem to be a great while before it was extensively tried; for within a couple of years, on the war breaking out, it was soon the general practice in each army, and with what good results the monthly reports of each army attested. He might say, that since the adoption of the saline treatment, an entire change had taken place, dysentery no longer being the dreaded disease it formerly was to either physician or patient, for he thought he was not exaggerating in saying that in nine instances out of ten, when seen at the beginning, and the saline treatment used, the disease was jugulated.

As to calomel, which had been so much recommended, it had been his experience to observe much more of harm than good to have followed its prescription. He thought that in the very beginning a single purgative dose might act perhaps very much like the saline, but that the latter were far preferable. He had again and again been called to cases where calomel had been given in repeated doses, and seen the patient suffering from severe ptyalism in conjunction with all the dysenteric troubles. It was, however, he said, regarding the use of ipecac that he would especially speak. The gentleman who had opened the debate, and most of those who had followed him, had decried it. Here he must take direct issue with them. While ipecac a century ago had a good reputation in dysentery, and had as one of its old synonyms *radix anti-dysenterica*, yet its use in the disease had somehow fallen into comparative desuetude. He believed that Dr. Docker, a surgeon of the English Army in India, was entitled to the credit of reviving it, or rather showing the proper way of using it in dysentery, which was to not allow the patient food or drink for two or three hours, or, in other words, to have the stomach as empty as possible, then to prepare the patient for the retention of the ipecac by obtunding the sensibilities of the stomach by a large dose of opium internally, or better now, since the introduction into use of the hypodermic syringe, by the injection of a full dose of morphia, to be followed by a sinapism over the stomach, then to give from thirty to sixty grains of the dry powdered ipecac with only enough water to barely wash it down, the medicine in the same or smaller dose to be repeated in six hours.

For himself he could say, that he had been called a great many times to see cases of the most violent type of dysenteric—cases in which no use had been made of salines, but the astringent plan pursued from the commencement, with no improvement, the patient gradually growing worse, and discharging blood and mucus every few minutes, accompanied with intense tormina—again and again he said he had seen such cases, within twelve to twenty-four hours after instituting the ipecacuanha treatment, with all this tenesmus gone, and a free fæcal evacuation to supersede the bloody mucoid discharges. There were several members of the Association, he said, in connection with whom he had seen cases, who if present could corroborate fully this observation. In no acute case of dysentery had he ever seen the remedy fail in promptly arresting the disease, and so constant and so striking had been the results, that he had gotten to look upon ipecac in dysentery as almost as much of a specific as quinine in malarial fever.

(*d*) DISEASES OF THE URINARY ORGANS.

Water in Renal Disease.

Dr. AUSTIN FLINT closes an article on the remedial uses of water, in the *American Practitioner*, January, 1875, as follows:—

In cases of renal disease, when an object of treatment is to promote the secretion of urine, water used internally may sometimes prove a truly potential remedy. I shall close this essay with an account of a remarkable case which seemed to substantiate this opinion.

A young woman was confined in Bellevue hospital in May, 1873. Metritis followed the confinement, and when recovering from this affection, after an exposure to cold, acute tubal nephritis occurred. The urine was greatly albuminous and bloody, vomiting was a prominent symptom, her vision was affected, she became delirious, and had a long and violent convulsion. She was purged with elaterium, the hot-air bath was employed, and morphia injected hypodermically. These measures arrested the immediate danger from uræmia. The vomiting, however, persisted, and the irritability of the stomach became so great that medicine could not be administered by the mouth. The urine was quite scanty (twenty-four ounces in the twenty-four hours); it was bloody, and the specific gravity was 1002. She suffered much from headache, and a return of the convulsions was hourly expected. Under these circumstances Dr. Jas. L. Perry, of this city, then one of the house physicians of Bellevue hospital, originated and superintended the following plan of treatment; water and milk were given alternately in a very small quantity at a time, and repeated at intervals of a few moments, a definite amount (four ounces) being given every hour. In twenty-four hours the quantity of urine was increased to sixty-four ounces, the next day the quantity was seventy-four ounces, and the next day one hundred ounces. On the second day the specific gravity was 1003, on the third day 1006, on the fourth day 1008, and in a few days 1010. The blood at once disappeared, and in a few days there was no albumen. With these favorable changes in the urine there was improvement in all the symptoms. After a few days the stomach tolerated solid food, and she was able to take tonic remedies. In three weeks she was free from any evidence of renal disease; the urine was normal in quantity and specific gravity; she suffered only from anæmia and debility; and she was subsequently discharged well.

This account is not given from recollection; it is a synopsis of the history recorded fully and furnished by Dr. Perry. The facts of the case seem to warrant the belief that the patient's life may have been saved by so simple a measure as the internal use of water.

Phosphates in Albuminuria.

Dr. Thomas O. Summers writes to the Nashville *Journal of Medicine and Surgery*, February, 1875 :—

Some time ago I called attention, through this journal, to a remarkable relation subsisting between albumen and the phosphates in the constituence of urine; and since that time, further investigations, on the part of myself and others, have confirmed me in the views at that time expressed.

It will perhaps be remembered by some, that I then announced the fact that the presence of albumen in the urine was marked by a deficiency or total absence of the phosphates, and on the other hand, in urine charged with phosphatic deposits, no albumen was ever found. In order to arrive at the *rationale* of this phenomenon, I used the endosmometer, holding a solution of albumen in alkaline carbonates—the albumen in this case rapidly passing through the membrane to fluids on the outside. But upon the introduction of the triple phosphates into the albumen solution, it was reduced to a state of suspension which would not allow of its osmosis. Applying this to the blood, it is clear that the alkaline carbonates of that fluid will hold the albumen in solution, unless there be some agent to reduce it to a state of suspension. This agent we have in the phosphates. If, then, for any reason, they are not assimilated, the fact will be at once indicated by the presence of albumen in the urine.

Proceeding upon this basis, my colleague, Prof. Maddin, informs me that several cases of pronounced albuminuria have lately been treated by him with marked success; and my own observations aside, others have also indicated their practical appreciation of the views which I have just recapitulated.

The great end to be obtained is the proper assimilation of the phosphates. In order to do this, they are to be administered in their most soluble form. I have found the phosphate of soda (tribasic) to be more readily assimilable than any other preparation of the phosphates. This, however, is to be determined only by the peculiarities and idiosyncracies of the case involved.

I earnestly commend this fact in urinary pathology to the consideration of the profession; feeling well assured that by this they will be enabled to meet the indications of a hitherto intractable disease.

The Diabetic Diathesis.

It is stated in the London *Medical Record*, January 13, 1875, that Dr. R. Schmitz has observed and treated 104 diabetics since 1868, of which 77 were males and 27 females. The ages were as follows:—1 girl aged four years; 8 cases from ten twenty years (including a boy aged eleven and a half; 1 male, 1 female, aged fifte 2 males aged sixteen; 2 males aged seventeen; 1 female aged nineteen); 9 ca from twenty to thirty years; 16 from thirty to forty years; 16 from forty to fi years; 38 from fifty to sixty years; 12 from sixty to seventy years; 4 cases fr seventy to eighty. In 45 of these the immediate cause of the diabetes must be ad ted to be some disorder of the nervous system. Of these there were many varieti in 15, anxiety and great sorrow; in 8, intense pain, mostly due to accidents; i severe affections of the nerve-centres; in 7 more there was incessant mental ac ity; in 3 there was great shock from fright; 3 others had practised onanism f long time, and 2 had great nervous excitement in consequence of prurigo puder rum. In 20 persons the diabetes might be ascribed to immoderate use of sugar 7, extreme debility resulting from severe illness seemed the cause; three times, se cardiac mischief, twice bad forms of syphilis, and twice amyloid disease of the l and kidneys were present. In the remaining 32 there was no obvious cause for diabetes. There was albuminuria in 12 out of the 104 cases. Many of these im diate causes of diabetes, such as grief, anxiety, etc., are met with in hundre men, but how few of these have diabetes! One is, therefore, almost tempte believe in a diabetic diathesis, or a proclivity to diabetes (disposition). Th probably inherited in many cases. Out of these 104 twenty-two showed this h ity in a marked manner. In one the grandfather, in one both grandfather father; in six the father, in six mother and sister, and in eight the sisters, were betics. Had doubtful statements, such as "I believe," "I think," etc., been t the number would have been very much larger. Considering how few are "po in family histories, and how many cases of diabetes, as Seegen says, are never nosed at all, we may conclude that in most cases this disease is congenital and rited. Recognition of this proclivity may be useful to our patients. Tha diabetic diathesis, when inherited, still needs some definite proximate cause, is by several cases.

General Symptoms of Bright's Disease.

From a very instructive paper on this subject by Dr. J. M. FOTHERGILL British Medical Journal, January 9, 1875, we make the following extract:—

In the first place, we may review the changes inaugurated in the circula chronic renal disease, not so much as consequences as almost a part of the We might as well leave the effects upon the throat out of the consideration latina, as the effects upon the circulation out of the consideration of Bright's Without alluding to any controversies, I will confine myself to the enumer the changes so induced as given by George Johnson and Traube. When th is imperfectly depurated by the kidneys, and the aid given by the skin an auxiliaries is not sufficient to supplement that imperfect action of the kidn products of tissue-waste and of superfluous peptones accumulate in the bloo effect of the excess of waste products in the blood is to introduce spasm of t cular coat of the tiny arterioles of the system generally. This produces an tion to the flow forward of the arterial blood, and a rise in the blood-pressu

The heightened blood-pressure, or increased arterial tension, offers a gre ance to the flow forward of the blood in the contraction of the left ventricle a consequence, hypertrophy of the left ventricle follows. We must dismiss minds any idea of antagonism betwixt the heart and the arterioles; suc would but obscure the subject, and create artificial difficulties. The excess of waste products induces spasm of the arterioles; this obstructs the blood-flow, and obstruction to the blood-flow, no matter how produced, induces hypertrophy of the heart. The matter in itself is clear enough, if not darkened by unfortunate explanations, which rather tend to shroud than illustrate the subject. The sustained spasm of the muscular coat of the arterioles eventuates in hypertrophy; so that we have an hypertrophied condition of the two muscular ends of the arterial system—the central muscular mass the heart, and the peripheral muscular tubes the arterioles. Betwixt these two hypertrophied muscular ends, the connecting tubes, the elastic arteries, are highly distended.

The condition of heightened pressure in the elastic arteries leads to various sequelæ, not only pathologically interesting, but diagnostically useful. Thus, we get an accentuation of the second sound of the heart, or, to be more exact, of the sound produced by the closure of the aortic valves. These valves are closed by the recoil of the elastic arteries, and especially of the aorta. Now, elastic bodies recoil in direct proportion to the amount of distension to which they have been subjected. Consequently, the arteries, over-distended in this condition, recoil with proportionate force, and so close the aortic valves with much violence, producing a louder note. This accentuation of the aortic second sound is highly estimated in Germany as a physical sign of Bright's disease. It is really of much importance.

We are all aware that the filtration of fluid from the blood into the tubules of the kidney is very much affected by the blood-pressure; the greater the pressure of the blood the faster the flow, as seen in the rapid accumulation of urine after the free imbibition of fluids; the lower the blood-pressure, the slower the filtration through the thin-walled vessels of the glomeruli of the kidney, and the less the bulk of urine; as seen in the scanty urine of advanced heart-disease. In chronic Bright's disease there is a persistent condition of high arterial tension, and consequently there ought to be a large flow of urine. Clinically, we know that this is the actual state of matters. A large flow of pale-colored urine of low specific gravity is one of the best marked evidences of chronic renal disease.

This is all simple enough, surely; but, nevertheless, the absence of a large flow of urine does not negative the presence of renal disease. In some patients, and especially in women, the effects upon the circulation vary from what has just been described, and, instead of hypertrophy of the left ventricle being induced by the obstruction offered to the blood-flow, dilatation is produced from the yielding of the heart-structure; consequently, there are not the increased arterial tension and the results thereof. Notably, there is not the increased bulk of urine which is found along with hypertrophy of the left ventricle. There is an absence of the hard incompressible pulse of high arterial tension, while palpitation is often present, indicating the inability of the ventricle to overcome the obstruction offered by the spasmodically contracted arterioles. Mistakes are commonly made in the diagnosis of Bright's disease in women, from these variations in the resultant vascular changes of that condition.

But what is more important still, the hypertrophy of the left ventricle, ordinarily found, in the course of time undergoes structural degeneration. The increased arterial tension leads to over-distension of the elastic arteries, and this over-distension is the commonest cause of that change in the arterial coats known as atheroma. This change, called atheroma, is a parenchymatous inflammation of the arterial walls, which gradually alters their structure, and causes them to become less and less elastic. The aorta especially is affected; and, as the aortic recoil is the propelling power which drives the blood into the coronary arteries—the nutrient arteries of the heart itself—when that recoil is diminished by growing inelasticity, the blood-supply to the heart becomes insufficient, and the muscular structure undergoes fatty degeneration, or necrosis. This decay of the primitive muscular fibres cuts down the power of the heart, and with it the sustained high arterial tension. What then follows? The large flow of urine, characteristic of the earlier stages, gradually and silently passes into the small bulk of urine indicative of heart-failure, as the condition of cardiac debility becomes superimposed upon the primitive condition of renal cirrhosis. This change in the bulk of urine is most lucidly pointed out by Sir William Jenner in some lectures published in 1865. I know no more valuable contribution to our knowledge of this matter than those lectures, which should be read, and carefully re-read, by all thinking practitioners. In time, then, as the changes in the heart-structures proceed, the large bulk of urine merges, by insensible gradations, into the scanty flow of heart-failure. This change is one that must never be forgotten, as misapprehensions may readily arise if this change be overlooked.

There are indications furnished by these changes in the arterial system which are diagnostically valuable. The overstretching of the elastic arteries, which occurs in chronic Bright's disease, is the cause of the atheromatous condition of the arteries generally found along with renal disease. This over-distension, as the cause of atheromatous changes, has been pointed out by Tzostakowski in Germany, and by Moxon, Clifford Allbutt, and myself. Consequently, arterial degeneration is very common in chronic Bright's disease; and the elongation and tortuosity of the arteries produced by atheroma, or endarteritis deformans, are readily seen in the serpentine temporal arteries, and felt in the radial pulse. Hard, thickened, elongated and tortuous arteries, are very common in chronic Bright's disease, and ought always to put the practitioner on his guard as to his diagnosis.

The spasm of the arterioles, which, as we have seen, is one of the first links of the pathological chain which we have here been describing, is pronounced in the vessels of the skin. Consequently, the skin is dry, inactive, and does not readily perspire. The spasm, and consequent hypertrophy of the cutaneous arterioles, render the action of diaphoretics in ordinary doses quite ineffective. Such a condition of the skin is very common amongst the subjects of chronic Bright's disease, and especially in men, and in women where the effects upon the circulation are pronounced. At other times, chiefly in those women in whom hypertrophy of the left ventricle is not so distinct, the skin presents the appearance of water being effused into it, underneath it rather, and into the meshes of the subcutaneous areolar tissue. It is very commonly apparent in fulness of the lower eyelids, and in the pale œdematous hands, which look as if they would fester if scratched. This condition is found in the adynamic forms of renal disease, chiefly in women with dilated hearts; and still more, if they drink more alcohol than is desirable.

At this point, we may leave the changes in the circulation. A word, however, as to the frequency of apoplexy in the subjects of Bright's disease. The high arterial tension maintained by the hypertrophied heart and arterioles commonly eventuates in the rupture of an artery in the head; especially if there be already existing arterial degeneration.

We will now review the abnormal changes inaugurated or instituted by renal inadequacy through the blood upon different organs, especially the eliminant organs. Experiment has established the presence of urea and of the earlier products of histolysis in the blood after ligature of the ureters, or extirpation of the kidneys (Oppler, Schottin, Perls, and Zalesky); and Garrod has demonstrated the presence of uric acid in the blood of the gouty. The presence of these products in the blood in excess produces various results. Among the commonest are changes in the hair. If the hair be fine, it usually falls from the vertex, and the circle left in time often grows gray at the temples. If the hair be strong and coarse, it does not fall out, but turns gray early and completely. At other times, very white hairs will be found scattered amidst hair of natural hue. Scores of observations made in the great dead-house of Vienna enable me to speak with much confidence as to the co-existence of these changes in the hair along with renal disease.

The eyes are very commonly affected; but the changes revealed by the ophthalmoscope do not come within the scope of this paper. The sight is often impaired, or the patient may see double. There is often, too, an arcus senilis, not rarely partial, and found only under the upper eyelid. It is not so much the blue sharply defined arcus of green old age, as the yellow arcus with indistinct margins and a cloudy cornea—cloudy from fat-granules being scattered through its substance. This last is very commonly found with early and marked senile degeneration. The ear is worth observing. In young gouty subjects, it is usually high-colored, swollen and shining; sometimes the lobe is red, and full to glistening, so tense is the skin. At other times, the development of connective tissue is more sparing, and the ear, especially the lobe, is wrinkled and withered-looking, and the helix is studded with chalk-stones.

The *tout ensemble* of each case is marked and readily recognizable by the eye which has learned to note and register these changes. In one man, there are a high-colored face, gray hair, and glistening ear-lobes, with a fair *embonpoint;* in another, there are a wrinkled ear, a similar condition of the skin of the face, an arcus, a bald crown, and general leanness: in both, there will be found a distinctly tortuous temporal artery. In a third, you will find pallor, isolated gray hairs, a watery looking eyelid, a hand bearing similar watery characteristics, muscular tremulousness, and a wavering, unsteady eye, with a morbid self-consciousness, and a suspicious readiness to inveigh against stimulants. Just look about among your lady patients over middle age; you will soon find the person I have last described. These are typical forms; but there are others besides these three.

In all forms, however, there will be found one characteristic—a mental one; viz., irritability—a symptom more constantly present than any other. Ask these different persons, when patients, if they feel themselves at times very irritable; easily put out by slight exciting causes; often with a distinct consciousness that there is an element of unreason present, which adds to their irritability; and they will all answer in the affirmative. The plethoric individual will be distinctly and markedly irascible; the second will be found irritable and anxious, and the third fidgety, capricious and desponding. We will linger a moment over these mental symptoms, so constant, so suggestive, and yet somehow so little understood. The plethoric individual has a well-sustained flow of arterial blood to his brain-cells, and he is quick, hasty, impetuous and commonly explosive. His cerebral cells are well supplied with blood holding in solution renal salts, which act as irritants. We are all familiar with the gouty temper, as well as the gouty temperament. But at times this person will suffer from unaccountable depression, and an anxiety he cannot dismiss. The explanation of this we shall find to lie in spasm of the arterioles of the pia mater and the gray matter of the convolutions; and the cerebral anæmia tints his thoughts with unhappiness. In the second and third forms, depression, gloomy presentiments, and dark forebodings, are the prominent characteristics, and the irascibility is veiled by an overwhelming condition of sadness. In the third form, this mental wretchedness is commonly the causal origin of the taste for alcohol; it is the relief it affords to this groundless mental pain or misery which forms its chief allurement, its essential attracting force.

In all these forms there will be found a certain amount of sleeplessness. It does not arise from pain; but the patients cannot catch sleep. The thoughts are active, but they run in a circle. After long thought, or rather train of thought, the original point of departure is reached once more. This is exhausting and irritating. It is not till far into morning that they can drop off. When they awake, the imperfectly rested brain is irritable, lacking in grasp, and deficient in power of concentration and endurance.

One curious symptom you will find almost always present; and that is, the patient gets up at night to make water. One gets up at one o'clock; another not till five. Whatever the explanation of this phenomenon—and I have none to offer—it is most constant.

When, then, you find a patient, especially at or over middle age, presenting the physiognomical indications given above, put the following questions: "Are you irritable and easily perturbed in mind? Are you often sleepless—not from pain; but you cannot catch sleep? Do you get up at night to make water?" If these questions be answered in the affirmative, then there exists good ground for a presumptive diagnosis of chronic renal disease. If the patient be old and the circulation failing, put the last question thus: "You do not make so much water as you used to do. Do you get up at nights still to make water?" Anintelligent look, half of inquiry and half of suspicion, will tell you of your hit, before the speech of the patient assures you of the correctness of your aim. Here the failure of the circulation has produced that change in the bulk of urine previously described.

The Lesions of Vision in Uræmia.

In a clinical lecture reported in the *Irish Hospital Gazette*, May 1, 1875, Dr. C. J. NIXON remarks:—

Ophthalmologists describe two forms of disease occurring in albuminuria, uræmic amblyopia and retinitis albuminurica. The former generally occurs in acute Bright's disease, and is associated with the graver symptoms of uræmic intoxication. Sight may be suddenly lost for a time, but soon after the cessation of coma or convulsions it may be completely restored. In exceptional instances, however, this form may terminate in retinitis, and one case of this mode of termination has been recorded, I believe, by Graefe. In uræmic amaurosis or amblyopia, no appreciable changes exist in the retina or optic discs, though it would be interesting to determine, if an examination were practicable during an epileptoid seizure, whether some evidence of altered circulation might not be found. In connection with this it is interesting to mention that Dr. Hughlings Jackson had an opportunity of examining the retina during an epileptic fit; he observed extreme pallor of the optic discs and retinæ, and occasional disappearance of the outline of the vessels, and to this condition this observer applies the name of epilepsy of the retina. Uræmic amblyopia, as far as is now known, is similar to amaurosis, arising from reflex irritation, especially originating in the branches of the fifth nerve, as from severe dental neuralgia, in which cases ophthalmoscopic examination affords negative results. In uræmia its pathology is obscure, though probably it depends upon impure blood affecting the nutrition of the centres from which the optic nerves arise. In chronic renal disease, especially in the cirrhotic form, the lesion of sight is of a more lasting duration, and attended by pathological changes so characteristic and marked, that we owe to Leibreich the observation that Bright's disease may be often diagnosed by the ophthalmoscope alone. In the first stage of this affection, the principal signs described by Soelberg Wells are—a fulness of the retinal veins, which become dilated and tortuous, the arteries being narrowed and soon hidden by a serous exudation which infiltrates the optic nerve and its expansion; the optic disc becomes swollen, and its outline gradually merged in the retina. The latter assumes, from the serous exudation, a faint fawn-colored appearance, in which delicate light grayish striæ are found, which are due to sclerosis of the connective tissue and of the nerve fibres. As the disease progresses, streaky hemorrhages, remarkable for their number and size, occur in the direction of the retinal vessels, and peculiar white spots, which are regarded either as discolored blood or fatty degeneration of the cellular or connective tissue elements, make their appearance at the central parts of the retina, and by coalescing form a broad white mound around the optic disc.

The Treatment of Diabetes Mellitus.

Dr. **Dickinson**, of London, in a late treatise on Diseases of the Kidneys, rejects Dr. Harley's division of cases of diabetes into those from excessive formation of sugar by the liver, and those from diminished assimilation by the tissues, but thinks that a somewhat ill-defined and shifting line may be drawn between cases in which the liver only transmits the sugar brought to it by the portal blood, and those where out of protein substances it forms sugar. In the former case a restricted diet causes the sugar to disappear, in the latter not. Many cases in the earlier stages belong to the first class, and subsequently assume the more severe form.

As to duration, diabetes rarely proves fatal under six months, but does so in a large majority of cases under four years. Some instances are given where the disease has lasted so much as fifteen years, and yet the patient lives; and one very remarkable case where death occurred twelve days only after the patient had run second in a foot race, believing himself at the time to be in perfect health.

Medicinal treatment is considered as of quite secondary importance to that by diet. Of drugs, strychnia, cod-liver oil, iron and phosphoric acid are looked on as of most value. The curative action of opium "is so limited that it may well be believed to have cured fewer of the subjects of the disease (diabetes) than it has killed." The author has found that diabetic subjects possess a very unusual tolerance of narcotic drugs, such as cannabis indica and belladonna. Iodide of potassium diminishes the excretion of sugar, but causes great prostration and loss of appetite, to which the diminution in the sugar is probably due. The skim-milk treatment receives no favor from Dr. Dickinson.

OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

I. OBSTETRICS.

Sphygmographic Tracings in the Puerperal State.

At a meeting of the Obstetrical Society of London, in December, 1874, Mr. FANCOURT BARNES read a paper on this subject. He pointed out the extremely high tension in primiparæ before labor; its disappearance after delivery; the appearance of a characteristic tracing on the second or third day, with the milk fever, showing fulness, some dicrotism, an absence of tension, a frequency of about 120 beats per minute, and a well-developed percussion-stroke. He showed the gradual return of the pulse from this date to its normal state. He considered the high tension in pregnant women due to (1) hypertrophy of the heart; (2) increased amount of blood; (3) additional strain on the kidneys, caused by the added effete matter thereby to be excreted; (4) the vascular system not having accommodated itself to the added physiological work; (5) functional increase of nerve-force during pregnancy. He said that if the high tension made its reappearance after delivery, it might be looked on as an omen of coming albuminaria with eclampsia and uræmia. Here he considered the sphygmograph to afford aid in the prophylactic treatment of these diseases.

Pruritus Formicans in Pregnancy.

Dr. H. Y. EVANS gives the following case in the *American Journal of the Medical Sciences*, January, 1875:—

Mrs. ——, æt. 23 years, of medium size, weighing 104 lbs., of ruddy complexion, and in perfect health, ceased to menstruate on the 29th day of May, 1871. The usual signs of normal pregnancy, including morning sickness, in due time became manifest; quickening occurred at the expiration of the fourth month, at which time her health was excellent.

At the beginning of the sixth month, however, there was a slight attack of indigestion with constipation, which, by the employment of the simplest remedies and by care in diet, was overcome.

Coincident with this attack there appeared a condition of the skin of the hands and forearms, called, as we were taught, pruritus formicans; it gradually spread to the trunk, especially attacking the thorax and back. These paroxysms commencing in the evening would last almost the entire night.

The intolerable pruritus cutaneus attending them would cease only when the torment had exhausted the patient.

After a few hours of rest every vestige of the trouble, save where the surface was torn by scratching, would subside.

These attacks continued daily for four weeks; at times, the mental excitement produced by the formicating sensation would climax in a hysteroidal condition verging on convulsion.

On the 11th of December, without premonition, the waters were expelled, and in twenty-four hours I delivered her of a living female child weighing 3½ lbs.

The child was perfect except in the development of its nails, and is at this date, September, 1874, nearly as large and quite as healthy as full-termed children are when of her age.

The mother again became pregnant, her courses ceased on the 26th of February, 1872. Her health was excellent and continued thus to the end of the seventh month, at which time the pruritus again returned with greater severity. The mode and character of the attacks were identical with those of the first pregnancy; and terminated in a rapid delivery of a still-born male child on the 26th of October, 1872.

The softened and partially decomposed edge of the placenta indicated that the death of the child had occurred two or three days prior to delivery. The mother did well, and was soon about, enjoying good health.

In December, 1873, she became *enceinte;* everything went on favorably until July 1st, when the itching again returned. Attacking first the feet, and subsequently spreading, as she expressed it, like insects crawling, until the greater part of the surface of the body was in a state of excessive excitement.

This steoreotyped programme continued daily in all its minutiæ until the apprehended event again occurred, August 1st, 1874, when she was delivered of a living male child.

The humiliation attending these results in this case arose from the utter futility of my endeavors either to account rationally for the attacks, or even to modify their severity so far as to prevent the thrice repeated sequelæ. Every possible zeal was exercised in investigating the cause.

The uterus before, during, and after pregnancy, as far as could be recognized by digital explorations, revealed nothing abnormal.

The excreta gave no clue to the cause of the disorder.

The attacks of indigestion and pruritus were twice coincident; on the third occasion the itching appeared without gastric disturbance. The skin, except during the pyrexia, was soft, clean, and at times moist, and free from any unusual papillary elevations; nor could we observe any morbid change in the tissues of the integument before the itching commenced.

I conclude that (*a*) the skin irritation was a neurosis depending upon a stage of pregnancy; and (*b*) that the long-continued excitement arising from this hyperæsthesia was the cause of the three premature deliveries.

The Treatment of Abortion.

On this subject Dr. A. J. C. Skene, says in the New York *Medical Record,* January 23d, 1875:—

When the ovum is retained after dilatation of the os, I remove it through the speculum, by means of forceps and curette. The patient is placed in a semi-prone position, and Sims' speculum introduced; the anterior lip of the os is seized with a tenaculum forceps, and the cervix drawn downwards and forwards. An ordinary dressing or bullet forceps is then carried into the uterus, and the ovum seized and brought away whole or in part. If only a part of the ovum is removed by the forceps, which is frequently the case, then the curette should be introduced, and the contents of the uterus thoroughly and rapidly scooped out. The instrument which answers best for this purpose is the curette of copper wire, without a cutting edge, described in Thomas's work on diseases of women, but it requires to be very much larger. In using this instrument with reasonable care, no injury can be done to the uterus.

The uterus usually contracts promptly, to an extent sufficient to prevent hemorrhage, when its contents have been removed by the curette. If in very rare cases hemorrhage continues even when the uterus is perfectly empty, then ergot is indicated, and should be used without delay. If that fails to produce contraction, the uterus may be tamponed with sponge or cotton. Should the bleeding still persist, cotton saturated with persulphate of iron may be used. Dr. J. Marion Sims' method of using "iron cotton," as he calls it, as a tampon to arrest uterine hemorrhage, is the best. He uses a piece of whalebone, as long as a uterine sound, tapering to a point, and curved near the end. According to the length of tampon required, that extent of the whalebone is smeared with lard, and then wrapped with layers of "iron-cotton" until the tampon is the size required. It is then carried up to the fundus uteri, and held in place, while the whalebone is withdrawn. If the uterine tampon inclines to come away, a pad of cotton placed in the vagina will hold it in place. In ten or twelve hours the tampon may be removed.

The rules of practice may be very briefly recapitulated:

1. Where the symptoms of abortion are slight, and of short duration, efforts should be made to arrest it.

2. During dilatation of the os, opium should be given, if there is any call for it, and ergot should be carefully avoided.

3. Hemorrhage should be controlled by tamponing the cervix, the hydrostatic dilator being the best for that purpose.

4. When the os is fully dilated, and the ovum is not properly expelled, after the use of ergot, it should be removed by the forceps and curette.

5. Post-partum hemorrhage should be arrested by ergot and the intra-uterine tampon.

The inflammation of the uterus, peritoneum, or cellular tissue, which may arise, should be treated on general principles.

On the same subject Dr. Paul F. Munde writes to the *Medical Record*, January 30:—

Hoening recommends to express the ovum, either entire or in part, if the fœtus be already removed, by means of bi-manual compression, two fingers of one hand being introduced into the vagina and passed as far up as possible into the fornix vaginæ, and the other grasping the uterus through the abdominal parietes, thus firmly compressing the organ between the fingers of both hands and slowly and surely expelling its contents. If the uterus is anteverted or anteflexed, as is usual during the earlier months of pregnancy, the two fingers should be passed into the anterior cul-de-sac, or the corpus uteri may be firmly pressed against the symphysis pubis by the external hand alone (the bladder having been emptied); if the uterus is retroflexed, the two internal fingers go behind the cervix. The relaxation of the abdominal parietes in multiparæ (in whom, as has been statistically shown, most abortions occur), usually renders the seizure of the uterus by the external hand an easy matter. The facility and rapidity with which the expression of the ovum is accomplished, is, according to Hoening, surprising and gratifying, as also the absence of subsequent hemorrhage or puerperal trouble. The pressure in the uterus need not and never should be sufficient to do harm.

Before reading this paper, I happened to meet with a case of miscarriage, in which I succeeded in expressing the retained placenta by bi-manual compression. Since then, during the past summer, I employed the manipulation in two cases, both abortions in the fourth month, in consequence of retroversion, with the most complete success. Passing two fingers into the posterior cul-de-sac, and grasping the uterus firmly with the other hand from without, I immediately felt the uterine contents slip out towards the cervix, and pressed them entirely into the vagina by passing the two fingers behind the cervix forwards, towards the external os. Both ova were expelled into the vagina entire, the membranes of one of them rupturing as it left the os. Both women made easy and rapid recoveries.

Of course it is essential that the cervix be sufficiently dilated before the measure is attempted; in my two last cases I accomplished the dilatation, and at the same time controlled the hemorrhage by the introduction of the colpeurynter for several hours. The uterine contractions attending the dilatation of the os will generally loosen the adhesions of the ovum to the uterus sufficiently to allow of its easy expulsion.

The advantage of this *vis a tergo* over the introduction of the speculum, the forceps and the curette, to say nothing of the old method of passing the finger into the uterus, are obvious. I trust this communication may contribute to the general adoption of this most excellent practice.

Gelseminum in Cases of Rigid Os-Uteri and Sphincter Perinei.

Dr. Robert S. Payne, of Lynchburg, Va., Honorary Fellow and late President of the Medical Society of Virginia, says in the Virginia *Medical Monthly*, December, 1874:—

Case I. I was called to Mrs. S. at 4 o'clock on the morning of June 2, 1874. She informed me that she had been in labor for several hours. Examination indicated no progress. The os-uteri was thick, hard and unyielding. I ordered a warm water enema, and left my patient until 9 a. m., at which time I found no change, except that she was much discouraged, having suffered from the same difficulties (she had been informed as to her condition) seven times before, for she was now in her eighth confinement.

Her first child was born September 14, 1856, after a protracted struggle of eighteen hours before the os-uteri had dilated sufficiently for the passage of the fœtal head; and although pains continued frequent and very severe, another four hours elapsed before the restraint of a rigid perineum could be overcome. I attended this lady in six of her seven preceding labors, and can testify as to their severe and protracted character. The seventh occurred during her temporary stay in a distant State, resulting in a still birth, and, according to her testimony, was more severe and protracted than those preceding; her medical attendant assured her that at no time had he witnessed so obstinate resistance offered by both os uteri and perineum. During the six preceding labors witnessed by myself, I had resorted to all of the usual remedies to overcome these sphincteric contractions (the only observable barriers to physiological delivery). I used the lancet, laudanum and ether, tartar emetic, ipecac, belladonna ointment to the os uteri, warm water enemata and chloroform; each of these remedies was used at various times as far as, in my judgment, prudence would dictate, but without any very perceptible advantage in overcoming the sphincteric contractions or lessening the period of labor.

With my experience in this lady's case, I decided to try in this, her eighth labor, the efficacy of gelseminum as a relaxing agent. I gave her five drops of the fluid extract every five minutes, as near as I could reckon the time. Just after administering the fifth dose (25 drops in all) she made an effort to vomit, purely the effect of the reflex relation between the os uteri, and tho cardiac orifice of the stomach; at this moment a pain came on, the expiratory excitors were brought into play, and, on examination, the fœtal head was found to have passed out of the womb, and was pressing strongly upon the perineum, which, in turn, had become relaxed; the next pain expelled the child. *Was this a mere coincidence?* I think not.

Dr. Payne reports success in several similar cases, with the same drug.

An Undescribed Symptom in Rupture of the Uterus.

Dr. R J. Preston, of Abingdon, Va., gives the subjoined case in the Virginia *Medical Monthly*, December, 1874:—

Rupture of the uterus, it has been justly said, is one of the gravest accidents which can occur during the progress of labor. The following fatal case in my practice is now reported for the purpose of calling attention to a new symptom, not generally mentioned in obstetrical works, and which was not recognized by me at the time, and, consequently, its significance was not appreciated—else the life of my patient might probably have been saved.

M. W., a mulatto, aged twenty-six years, was taken in labor with her third child, November 4th, 1872. There was a slight watery discharge at 10 a. m. Being called at 3 p. m., I found the patient complaining of flying pains in the back, which began some hours previously, and had gradually increased in severity. On vaginal examination, the os was found but slightly dilated, head presented in the first position, and labor hardly commenced. I prescribed morphiæ sulphatis, gr. ¼, to be repeated after a proper interval, if necessary, and left with instructions to send for me as soon as labor pains occurred.

November 5th.—Called at 4 a. m.; labor but slightly advanced, though the pains were somewhat increased in frequency and severity, and the os was dilated to the size of a quarter of a dollar. Patient had slept some. During the examination at this time, a small tumor, of a cushion-like soft feel, was discovered just below the utero-vaginal junction occupying the right latero-posterior aspect of the vagina. Some suspicion of pelvic hæmatocele was felt at the time; but the swelling being insufficient to interfere with the progress of labor, the pelvis large and capacious, and the previous labors having been short and easy, no special attention was given to it. I remained till 6 a. m., and observed that the os, which was soft and dilatable, slowly responded to the feeble pains. I directed some aromatic teas (spice and pepper) to be given and continued, with nourishment.

8 a. m.—Patient in much the same condition—pains feeble and infrequent, head slowly advancing into the hollow of the sacrum, os dilated to the size of a Mexican dollar, and very dilatable; vaginal swelling disappeared. Presuming that the pains were so feeble and ineffectual on account of inertia of the uterus, I administered ergotine, gr. ¼th, which was repeated at 9 a. m., but without producing any apparent effect upon the frequency or strength of the pains. The head advanced very slowly, and as the patient became restless and fatigued, coffee and nourishment were

given at intervals. The beat of the fœtal heart was clear and distinct, and no obstacle to the easy progress of labor could be detected, except the want of strength in the uterine pains.

At 11 a. m., the os was almost fully dilated, head in the hollow of the sacrum. I determined to use forceps, and accordingly despatched a messenger to town (one mile) for them and for consultation. There was nothing in the pulse or in the condition of the patient indicative of exhaustion, except restlessness and fatigue; so I encouraged her by saying the labor would soon be ended, gave more nourishment, and retired to an adjoining room to read the morning's papers.

Nothing unusual transpired until near 12 o'clock, when I was startled by the sudden cry of pain. On hastening to the bed-side, expecting to find that the child's head had passed over the perineum, much to my horror I found my patient with the most alarming symptoms of shock—pulse faint and small, countenance pinched and pallid, and with severe lancinating pain in the right side of the abdomen. On vaginal examination, the child's head had receded beyond the reach of my finger, and some blood was discovered in the vagina. I now recognized that the terrible crisis of a ruptured uterus was upon me, and so stated to my patient and her friends. The increasing pallor of countenance and feebleness of pulse admonished me that my patient, just before a buoyant and robust female, was now rapidly sinking into the jaws of death. No anæsthetic was at hand; but while the nurse administered stimulants freely, I proceeded to perform version as rapidly as possible. Passing my hand and arm into the vagina, and through a large rent into the abdominal cavity, among the intestines, with some difficulty, I secured the right foot and leg of the child and brought them down. Considerable delay and trouble were here encountered on account of the child's left hip and leg hanging at the superior strait, until finally I returned the limb, which had been brought down, into the cavity, when I secured both feet, brought them down, and in a short while succeeded in delivering the body as far up as the shoulders. These having caught at the superior strait, presented another difficulty, while, from the labor of the operation thus far, together with the mental strain and anxiety consequent upon a crisis so terrible, I was much fatigued. At this junture, Dr. E. M. Campbell arrived with instruments, and rendered very efficient and welcome aid and counsel. After much toiling, the arms of the child were delivered, and we proceeded to deliver the head—brandy and camphor being freely given the patient, as her strength was sinking rapidly. The head was large, and before we could succeed in entirely extricating the child, death came and stopped us in this terrible and unfinished operation.

We were permitted by the friends to open the abdomen for the purpose of completing delivery. The uterus was found to be torn vertically for about five inches, along its posterior wall extending into the vagina. The placenta and membranes were detached and lying in the left side of the abdominal cavity, in a large amount of blood, liquid, &c.; the fundus of the uterus, firmly contracted, was lying upon the opposite side. To the naked eye, no signs of disease in the uterine tissues were observable. I regret that we could not carry the examination further, so as to determine more accurately the condition of all the parts.

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Relaxation of the Pelvic Symphyses.

The annexed case is reported in the *American Practitioner*, January, 1875, by Levin J. Woollen, M. D.:—

Mrs. T., aged nineteen years of age, of nervo-sanguine temperament, and of plethoric habit, was confined ten months after marriage. She was threatened with abortion about the sixth month, but under treatment passed the crisis and went to full term. Three weeks before confinement she was tormented with pruritus of the vulva, which was relieved somewhat by a local application of a mixture of glycerine, carbolic acid, and fluid extract of belladonna. There were considerable puffiness and œdema of the external organs of generation, and the pruritus at times was so severe as to nearly distract her. About the seventh month there was considerable swelling of the lower extremities, and at times severe headache. I suspected the existence of albuminuria, but examination of the urine proved no albumen present. Under treatment the extremities resumed their normal condition before labor commenced. The labor was painful, somewhat protracted, and called for chloroform for several hours before its completion. The head descended into the pelvic excavation without difficulty, but at the lower strait it was arrested for several hours, which, together with the unsatisfactory condition of the patient, so enfeebled the child that it died eighteen hours after birth. Its death so affected the mother as to render her condition for a few hours quite alarming.

About the fourteenth day after confinement the patient asked if she could leave her bed and sit up. I found her complaining of pain in the lower part of the abdomen and along the spine, with numbness of the lower extremities. Pressure over the symphysis pubis caused pain; and yet such pressure, when she got upon her feet and attempted to walk, was necessary to enable her to move her limb. Locomotion was extremely painful, and when she stood upon one foot, the body was greatly bent toward that side. I readily concluded that my patient was suffering from relaxation of the symphysis pubis, and directed her to wear a bandage tightly pinned around her hips. In a few days I ascertained that the bandage was of but little benefit, and that she could walk no better than before. I found the bandage was not properly applied, being only about four or five inches in breadth. I directed a bandage wide enough to reach from one inch above the crest of the ilium to an inch or two below the trochanters, and to pin it tightly, especially at the upper margin; also two perineal bands to pass from the back part of the bandage on each side, down between the limbs, and to be pinned in front near the crest of the ilium. After this my patient suffered little inconvenience and made a rapid recovery.

Relaxation of the symphyses often passes unrecognized by the physician. In many cases the patient is supposed to suffer from a slight form of metritis. It may also be mistaken for irritation of the spinal cord.

With regard to the causes of relaxation of the symphyses, physicians are not agreed. Some think that it is prone to occur in women with small pelves who give birth to large children; others say that it is usually met with in persons who have roomy pelves. In my own case the pelvis, though large, was contracted at its inferior strait, and I suspect that this condition quite often obtains. Barker speaks of serous infiltration as producing relaxation and softening of the articular cartilages. In my case there was inveterate pruritus, with serous effusion in those parts visible to the eye. I therefore conclude that the leading causes are, first, the effects of the serous effusion, softening and weakness of the articular cartilages; and second, pressure caused by the child's head, which, having passed almost unobstructedly into the pelvic excavation, and meeting with great resistance at the inferior strait, causes the symphyses to separate.

Rules for the Administration of Ergot.

Dr. J. Braxton Hicks, in a lecture published in *Guy's Hospital Gazette*, February 6, 1875, says:—

There is a rule which I may as well mention here, namely, *not to give secale if any obstacle to delivery is expected, unless we are prepared to render assistance when the pains have been roused.* I have seen the former portion of this rule enforced, but this is limiting our use of secale too much. Unless we have instruments, etc., close by, then the rule holds good. As an instance of the employment of this drug under these circumstances, I may mention a case. I was sent for in consultation to a patient who had been a long time in labor. The pains had subsided. Two doses of liquor secalis had been given, but without any result. The uterus was still motionless. It was not in a permanently contracted condition. I therefore repeated a third dose. I waited an hour without result. Thinking that perhaps the preparation was at fault, I gave twenty grains of the powder, boiled in water, and drunk with the dregs. In a quarter of an hour the uterus was in full action. We had suspected some obstruction from noticing the size of the pelvis. I was therefore ready with the forceps. After waiting fairly and finding no advance, the forceps was applied and the child delivered, an active uterus making the remainder of delivery safe and natural. The same would occur in a very contracted pelvis; if the uterus should fail in its activity in this case, even if we perforate first (supposing we do not think it advisable to turn) we are much assisted, and no danger is run, if we arouse the uterus into action before we draw down the child. It is difficult to lay down rules as to when it is urgent, in cases of inactivity of the uterus, that we should stir it up to action. I remember, in my younger days, allowing the head of a premature fœtus to rest on the perineum for twelve hours, at the end of which time there was one pain and the child was expelled. The administering of a dose of secale would at any time rouse "pains"; still, as there was no pressure, and as no ill resulted, there was no necessity. The pulse remaining good, and no aberration from the normal state existing, we may elect to wait without serious harm; it may be more convenient to get the labor over, and we shall not be acting wrong in hastening matters. But when the pulse rises, feverishness begins and the patient becomes anxious, fretful, and irritable, it is as well, the path for the exit of the child being clear, to give a dose of secale, especially if we have tried the perhaps milder though less certain measures at our hand for stirring up "pains." When the case is well selected, the full dose of secale, from half a drachm to one dracm, acts more satisfactorily as an expellent than small frequent doses. The latter tend to irritate the uterus and retain the child. If the uterus, however, be violently roused to expulsion, while the passages are unprepared or obstructed, then the uterus may injure and rupture itself, or may tear down the obstacle, rending the vagina or perineum, or damage the child by pressure, or crush its cranial bones, or rupture the longitudinal sinus by too much overlapping.

I prefer to give ergot in the form of powder, twenty to thirty, or even forty grains boiled in water, and the whole taken; this may be repeated in twenty or thirty minutes. There are many preparations, which can be given if proved to be good, in the equivalent doses. The ethereal tincture keeps well and is efficient, but is nauseous and liable to cause vomiting. It is prompt, and may be useful in *post partum* hemorrhage. Ergotine has been employed in about four-grain doses injected subcutaneously. It is said to be very efficient and rapid in action, but personally

I have not sufficient experience of it at present to speak of it more. It will be a very great advantage if ergot can be made to act promptly. Given in the form of a powder it is slow, even when previously boiled. It is more efficient if we employ the liquor of tincture, still it is very slow for such cases as *post partum* floodings. In ten minutes the crisis has often passed with one of two terminations; thus, although secale is good in the milder cases of flooding, it is practically useless in the sudden forms, unless its action come in afterwards, when our more active treatment has succeeded, to secure permanent contraction. It is a questionable point whether large doses of secale do not depress the heart's action, so much as to render its employment to be avoided in extreme cases of flooding. I am inclined to think that it has this effect; but this will not affect our employing it in cases without violent flooding. If in cases of flooding before labor we want to increase uterine action, we may generally employ it, unless the patient be nearly pulseless. It is always a great comfort to feel that when the child is born, the uterus will most probably be in an active state from the previous dose of ergot.

It has also been supposed that ergot is poisonous to the child. For myself, I have no proof of its poisonous properties, but I have often seen it kill the child. If you give it in ill-suited cases—I mean where the uterus, as in many primiparæ, is already irritated, where it has already half-asphyxiated the child, by pressing on the funis, placenta, and half closing the sinuses, then a dose of secale will go far to ensure its death; or if impaction be already present, and the suture overlapping, then the parts inside the cranium are pressed upon so hard as to extinguish life, or at least so to damage the brain as to make the child an intellectual wreck. Given in moderate doses, and in true inertia, I know no drug which is so certain of producing the desired effect.

On a New Method of Treating Spastic Contraction of the Uterus During Labor.

Dr. E. Fraenkel (*Archiv f. Gynækol.*, Vol. VII., p. 375), says that violent or tetanic contraction of the uterus requiring treatment is met with under the following conditions: 1. In some cases of contracted pelvis, where the membranes have ruptured early, and the uterus has been unable to expel its contents. If in such a case the face or brow present, as it often does, the treatment would be to turn at once, but that the violent contraction of the uterus makes it probable that if any attempt were made to pass in the hand to turn, it would immediately lead to rupture of that organ. 2. It is also met with in neglected cases of arm presentation, in which case disarticulation of the arm has usually been the treatment. Indeed, even now-a-days, well informed practitioners use the perforator in cases of contracted pelvis where, from spastic contraction of the uterus the effort to turn has failed. 3. Such violent contraction of the uterus is also met with during the third stage, and is due, according to Fränkel, to premature attempts to remove the placenta, whether by violent pressure or pulling on the cord. It may also occur where there is partial adhesion, the detatched portion of the placenta filling the os and irritating it to contract, while its expulsion is prevented by the adhesion. 4. Finally, we sometimes meet it in breech cases, where the os closes on the neck of the child, and frustrates all our efforts to extract the head.

The means that have been in use up to the present time for treating this state of the uterus, are, the use of opium by the mouth and rectum, of morphia, which is now usually given hypodermically, and chloroform. There are serious practical objections to all these methods. Both opium and morphia take some time to produce their effect. Chloroform has but little power in overcoming the spastic contraction, and hardly appreciably lessens the reflex irritability. It is true that chloroform shortens the pains and lengthens the intervals, but its chief action is in quieting the abdominal muscles, and preventing the patient bearing down. In cases, therefore, where from any cause, such as hemorrhage, immediate action is called for, no course is left but to overcome the spasm by gradual manual dilatation. This method is open to many objections, the first of which is that it is very tiring, and incapacitates the hand for further operative interference. Next, it is a powerful stimulant to increase uterine action. And lastly, it frequently causes injury to the soft parts, which is followed by para- and peri-metritis.

What we want, therefore, to obtain is some combination which will produce the greatest amount of relaxation of the uterine fibres with least fear of subsequent hemorrhage, and that acts so quickly as not to endanger either the mother's life or that of the child, by delay. Fränkel for some time thought that he had found out such a remedy in the combined use of the subcutaneous injection of morphia, followed by the administration of chloroform. He found, however, that there was sometimes dangerous delay even with this plan, and also that it was difficult to carry out when operating single-handed, as the administration of the chloroform required most careful watching, from the liability there is to dangerous asphyxia. He was led by the experiments of Breslau on the effect of the subcutaneous injection of atropine on uterine contraction, to turn his attention to this drug This method got into disrepute through a case published by Spiegelberg, in which the subcutaneous injection of $\frac{1}{40}$th of a grain of atropine was followed by dangerous atony of the uterus. Fränkel, therefore, determined to try the effect of a much smaller dose of atropine, and to see if its action could not be increased by combining it with morphia. Having employed this combination in many cases, he has come to the following conclusions: 1. In cases of spastic constriction of the uterus, either in the second or third stage of labor, whether the whole or only part of the uterus is involved, the use of the combined subcutaneous injection of atropine and morphia, followed by the administration of chloroform, is the surest, safest and quickest method for overcoming such spasm, and rendering operative interference possible. 2. If the proper dose, more especially of atropine (*i. e.*, not exceeding 0.001 gramme) is used, and the third stage skillfully conducted, the danger of subsequent atony, and consequent dangerous *post partum* hemorrhage, is not increased. 3 The use of the morphia and atropine makes the subsequent administration of chloroform both safer and easier.

The Use of Alcohol in Labor.

In the *American Practitioner*, December, 1874, Dr. D. MORTON writes :—

Lately I have been trying this force-generating property of alcohol in cases of parturition in which the action of the uterus was slow and inefficient; and though this test has not been applied in a sufficient number of cases to be adduced as demonstration, the response to my own mind has been favorable, and I have been led to consider alcohol, as used in a class of cases in which ergot has been commonly given, as a much more reliable agent. In a certain sense, which I can explain by reference to illustrations from physical science, it occurred to me that its action is specific. The heat-force applied both in the case of the liquefaction of ice and the working of machinery is manifested at the point where resistance is overcome, and nowhere else. So, in the cases of parturition referred to, the action of the alcohol seemed to be expended upon the active uterus without producing its ordinary physiological effects. Were I not supported in this view by abundant analogy, in addition to the fact of its being in thorough accord wth the principle of conservation of energy, I would hesitate to offer it. But who has not observed that there are conditions which greatly increase tolerance of alcohol? It is increased by muscular, intellectual, and emotional activity, and on the other hand by causes producing vital depression of any kind. It has long been a matter of common observation that patients under the influence of snake-poison can take an enormous quantity of alcohol without manifesting the ordinary symptoms of intoxication; and the leading symptoms in these cases, according to Erichsen, "consist in depression and prostration of the system, a feeble and intermittent pulse." By this principle of conservation this increased tolerance can be easily explained. In the first class of cases the energy evolved by the oxidation of alcohol finds an outlet, as it were, in functional activity; and in the second class the ordinary physiological effects do not and can not appear until the depressing influence, whatever it may be, has been fully antagonized.

Of the long array of arguments urged against anæsthesia in labor since its introduction, one based, as it is now very generally admitted, upon fact remains still to be disposed of. Anæsthetics do really impede and weaken uterine action, probably always prolonging labor in a greater or less degree, and sometimes rendering the patient liable to dangerous hemorrhage. That alcohol will counteract this tendency is in thorough keeping with its observed action in other cases. It appears to me indeed to be not merely a legitimate, but a necessary inference. Experimental proof of this, however, would require a much larger obstetrical experience than has fallen to me or come under my observation, since my attention has been directed particularly to this question. I will simply say that the confidence I feel in the power of alcohol in these cases enables me to give chloroform with far less apprehension of danger than I felt before.

On some Disputed Points in the Delivery of Cases of Breech Presentation.

In the *Archiv f. Gynækol.*, Vol. VII., Part I., will be found a paper with the above title, written by Dr. ERNST KORMAN of Breslau. In it his chief object is to refute the statement of Schröder, that, if well-directed manual efforts are unable to effect the extraction of the head in such cases, you will never be able by means of the forceps to deliver a living child. In support of his views the author gives thirty-five such cases which he has delivered, in thirty-one of which manual extraction succeeded, and in four of which he had to apply the forceps, having failed to deliver by the ordinary methods. Of these four cases, two lived and two were born dead.

According to his experience, the indications for applying the forceps to the head in breech and turning cases, are: 1. In cases of rigidity or contraction of the cervix, which grasps the neck of the child firmly after the arms have been brought down, and which can only be overcome by such an amount of force as would render a rupture through the cervix very likely to occur. 2. Where the chin is hitched over the pubis and cannot be made to rotate backwards, provided that the occiput has entered the pelvis. In extracting in such a case we should endeavor to make the occiput rotate round the pubis as a centre, the chin remaining above it and being born last. In this way the danger of ruptured perineum is lessened. 3. When there is slight disproportion, the fœtal head being compressible. Such disproportion may occur in quite normal pelves from extravasation of blood within the fœtal cranium, from over development, or from hydrocephalus.

The other conclusions to which the author comes refer to the treatment of difficult breech-cases, for conducting which he lays down the following rules: 1. In cases where the breech is delayed at the brim, extraction should always be effected by bringing down the foot that is in front. The blunt hook should never be used unless we are certain that the child is dead. On this point he agrees with both Schröder and Hüter. 2. When the breech is well down in the pelvis we should still try to pass up the hand and bring down the foot that is anterior. If we fail in this, or if the breech be already at the outlet, we should try Kristeller's plan, or the expression method. This can, however, not be carried out in cases where the uterus is very sensitive to pressure, or where there is prolapse of the vagina. In such cases then, we should endeavor to extract by means of the forefinger inserted into the bend of the thigh, and if this fail, a loop should be passed over the thigh, which is not a difficult thing to do, and delivery accomplished by making traction on the loop. If the child is known to be dead, we should use the blunt hook. In no case is it good practice to apply the forceps to the breech. Schröder thinks that if the indications to delivery are urgent, the child must run the risk incurred by the use of the hook. He disapproves of the application of the ordinary forceps to the breech, and thinks the breech-forceps are constructed on wrong principles. Hüter, on the other hand, approves of the application of the forceps to the breech when it is low down, and cannot be extracted by manual interference. He directs that the blades should be applied over the cristæ ilii, that the handles should be firmly pressed together in order to prevent them slipping, and that the blades be removed as soon as the trochanters are born. If you are unable to effect the extraction with the forceps you must have recourse to the cephalotribe. Unfortunately Hüter does not tell us in how many cases he has succeeded in thus effecting delivery, but expresses himself generally thus: "If the forceps be carefully applied there is not the least danger of injury either to mother or child." Dr. Korman thinks that this operation is, at all events, unnecessary, and also that Hüter has under-estimated the danger of injury to the child. 3. The extraction of the head is best accomplished when the child is alive by the plan adopted by Veit (Smellie's method), or that known as the method of Prag. Should the head be very high up and the pelvis contracted, we should, before we try to extract by either of these methods, press the shoulder that is anterior forcibly against the perineum, taking care that in so doing you do not fracture the clavicle. Firm pressure on the head through the abdominal walls is of the greatest assistance to the operator. In the cases already given, we should apply the forceps. If the pelvis be greatly contracted, then we should perforate and apply the cranioclast, and this at once if the child is known to be dead. Schröder perforates at once if he fails in the manual extraction. Hüter has his own method of manual extraction. In case of contracted pelvis he recommends us to grasp one leg of the child in each hand and make firm traction perpendicularly downwards (the woman is supposed to be lying on her back across the bed, with her hips well over the edge), and when the head has thus been forced to enter the pelvis, to insert two fingers of one hand into the mouth, and grasping both feet with the other hand, make traction, at the same time turning the child's body upwards towards the abdomen of the mother. Should this fail he applies the forceps, and if after two or three pulls the head does not come down, he perforates. I agree with him about perforating if the forceps should fail, but think that he will require to apply them much oftener while he uses his own method of manual extraction, than if he were to adopt that recommended by Veit.

Amalgamated Placenta.

This name is applied to a form of pathological placental growth by Dr. E. A. Eakins in the Cincinnati *Lancet and Observer*, December, 1874. His case is as follows:—

On the 26th of July, 1874, I was called to Mrs. W. C. A., aged thirty-six, whom I found in her seventh confinement. She had been having slight labor-pains most of the day, and after taking some warm tea, about 6 p. m., she began to have violent pains, and when I arrived, about 6.30 p. m., I found the feet and buttocks of the child to the world. A few more pains completed the delivery. I waited a half-hour, and tried to remove the placenta; but could not do so, as the os was pretty firmly contracted. I waited an hour and a half longer, and made every effort I could to remove it; boring through the os with my fingers until I encountered a constriction, which could not be overcome. I then concluded to wait until morning, when I made another effort with no better success. There being no hemorrhage of any consequence, I concluded to see what nature would do.

After the lapse of forty-eight hours I called Dr. James Moore, who administered chloroform. I then made an effort to remove the placenta, and found, surely enough we had an *hour-glass* contraction; but after overcoming this, and having my hand fully in the uterus, I could find no beginning to the placenta, and very little of a mass to correspond. What there was, laid on the right posterior side of the womb, and seemed to bulge up, from contractions, in a knot that could be grasped readily in the hand. There seemed no way left but to open, if possible, this bunch in the centre, and remove from within outward. I accordingly began to pick into the mass, and, having made an opening with difficulty, I succeeded in bringing a piece away about one and a half by three-fourths of an inch in size. This was as perfectly organized as the tissue of the womb itself, with no decomposition whatever. I tried to remove more, but could not succeed. Dr. Moore then made an effort, but could not succeed. We then concluded to leave the matter entirely with nature, and support the patient, thinking further manipulations would do more injury than good. I accordingly visited her the following morning, ready to act on the defensive.

Recovery was gradual to the 22d, when I discharged her. I would say, recovery was interrupted by a slight dysentery and a slight lung trouble.

I have had a great many cases of *retained* and *adhered placenta;* but I prefer to call this a case of "*amalgamated placenta,*" if we recognize such a name, and I believe we do, as I find two cases mentioned in Churchill's Obstetrics. In mention of this case to an aged and very reputable teacher of this subject, he said he regarded it as simply an *adhered placenta.* Now, as much as I regard the opinions of those having given the subject their life-study, I beg to differ in this opinion. I believe we should class as "*adherent placentas,*" those *adhering* and *finally* coming away; as "*amalgamated,*" those *perfectly* adherent, having *no points of detachment*, and *never coming away.*

Now, I believe this case in point to be an "amalgamated" placenta, for these reasons: 1. It was much smaller than I ever knew one at "full period;" 2. I could not find a beginning to membrane, or even origin of the fibers of the placenta; 3. When I succeeded in opening it in its centre, I could only bring away what naturally *twisted* off by the greatest effort, and it was *perfectly organized tissue,* firm as beef, the vessels appearing more like ordinary blood-vessels, and very contracted; and 4. It *never* came away, there now being no *tenderness* over the womb, and no *discharge.* I will here state that the discharges were *never* much more than natural, and part of the time *none.*

Another point in the patient is: During her fourth confinement the placenta adhered *slightly;* the fifth more; in the sixth still more, in fact remained two or three days, until we have the seventh case before us.

Again, the paralysis in this case was similar to the same trouble she had in her sixth confinement, and occurred the same number of *days* and (I think) *hours* after labor.

In this lady's sixth confinement the lochia ceased, and all the symptoms of puerperal fever set in; and, after trying every other means, I resorted to the iodide of potash, with bichloride of mercury, and upon the administration of a few doses the flow appeared, and she began to improve immediately. In her last confinement the discharge ceased several times, and was readily re-established by the same treatment And I would say, ever since 1871 I have resorted to it in the cessation of the lochia, and always with success; sometimes, however, without the mercury.

Case of "Peeling of the Epidermis" in a Living Fœtus.

The following case, reported in the British *Medical Journal,* January 9, 1875, has important medico-legal bearings. The writer is Dr. A. W. Edis, of the Middlesex Hospital: —

M. W., aged 35, married twelve years, mother of one child, aged 11, was last unwell February 25th to 28th, 1874. She expected her confinement the first week in December, but delivery was delayed until December 19th, at 1.20 p. m., when a living male fœtus, weighing eight pounds, was expelled. It was apparently stillborn, though the cardiac pulsation was evident from the first; but, after efforts had been persevered in for five or ten minutes, respiration was established, and the child cried vigorously. It presented a dusky blue appearance; but what in the first instance led me to believe that death had taken place some days at least, was the condition of the epidermis, which peeled off readily from the whole surface of the body, coming off in large flakes as if maceration had taken place. The nurse, a woman of considerable experience, stated that she had never seen a similar instance. The epidermis was more adherent in some parts than others, but peeled readily; and when the child was washed and dressed, none but a small portion between the fingers and toes and in the concha of the ear remained. The child cried, passed urine, took food, and seemed to be doing well; but about 2 a. m. the following morning the nurse noticed that the breathing was unnatural. A warm bath was given, but within an hour the child died, the surface of the body being almost purple.

Churchill says: "The peeling of the epidermis is conclusive proof of the death of the fœtus." Dr. Barnes, in his *Obstetric Operations,* speaks of "the coming away of epidermis and hairs" as a certain sign. Dr. Leishman also "regards peeling of the skin as a certain proof of the death of the fœtus;" and, indeed, nearly all obstetric authors agree upon this point.

A Case of Cæsarean Section.

The British *Medical Journal,* January 23, 1875, states that Dr. J. Cerf-Mayer, Surgeon in the French Navy (*Archives de Médecine Navale,* November, 1874,) details from his practice at Brest a successful case of Cæsarean operation:—

E. L., aged 30, a primipara, married fifteen months, had arrived at her full period. She was deformed from rickets. Spinal curvature was great The pelvis measured 1¾ inches. She was bow-legged. A median incision seven inches long was made from 1.2 inches below the umbilicus to 0.6 inch above the pubes. The uterus then presented, of violet hue. The amniotic fluid had been evacuated through the os previous to the first incision, and none escaped through the incision into the uterus. Every drop of blood was sponged away. The membranes being opened, a male child weighing seven pounds was extracted, and the placenta was removed by enucleation with the forefinger. A little effused blood was removed by means of sponges, and cold water was used as a styptic. A drainage-tube of a finger's breadth on a few loops was passed through the vagina and uterus, brought out at the incision, and fixed on the pubes, so as to facilitate the subsequent escape of pus or lochial discharges. No sutures were applied to the uterus itself, and six of silver wire were lightly drawn to close the external incision. The operation was performed under chloroform in a spacious apartment facing the south, and was completed in twenty-five minutes. The dressings were a fenestrated piece of cerated lint, covered with cold-water pledgets, and a lightly applied bandage. No hemorrhage followed, and micturition was not affected. On the sixth day the drainage-tube was removed, and injections of carbolic acid in aromatic decoctions were begun for the cleansing of the vagina and uterus, and ricinated collodion was applied frequently over the abdomen the next six or eight days, to diminish the intestinal inflation. No symptoms of metria, of metroperitonitis, or of hemorrhage, supervened. From the twelfth to the fifteenth day she was able to take a few steps across her room; and on the thirtieth day she went out with her infant. The complications were as follows: On the sixth day, a large protrusion of hemorrhoids was treated by suppositories of belladonna in cocoa-butter. On the sixteenth day diarrhœa appeared; and, during the following three days there were symptoms of enteritis. Under the use of poppy fomentations, laudanum and bismuth, diarrhœa had ceased on the twenty-first day, when phlegmasia dolens attacked the left leg. This was treated with emollients, cotton-wadding, mercurial unction and belladonna. The general treatment was, after the operation, thirty grains of ergot; and at night forty-five grains of chloral hydrate, which was rejected. On the third day a lavement of castor-oil brought away much flatus and very black solid fæces, after which the abdomen became supple. From the first day, up to the seventh day, sulphate of quinine was administered daily in doses of twelve grains, and, after the seventh day, in decreasing doses through the next fifteen days. The diet was at first of cold soups, with draughts of warm claret; and, in a later stage, nourishing and tonic food. Dr. Cerf-Mayer lays great stress on the advantage of spacious sanitary accommodation in all the capital operations, and on the steady administration of quinine. As to the mode of operating, he thinks that each case and every operator may require variations; but he doubts that the success will be much influenced by these, and believes that much more depends on the personal attentions of the operator during the operation and throughout the subsequent treatment of the patient.

The Retention of the Dead Ovum.

The Obstetrical Society of Dublin discussed this subject, as reported in the *Medical Press and Circular*, January 6, 1875, as follows:—

Dr. McClintock, in his remarks, included all those cases where the ovum or part of its involucra are retained *in utero* beyond some days after the death of the embryo.

These cases were not very uncommon, and formed a group possessing great interest for the practitioner, the pathologist, and the medical jurist. He described very succinctly the grounds of diagnosis and the general principles of treatment of these cases, and specially insisted on their great importance viewed from a medico-legal standpoint. With reference to the length of time which the dead ovum may be retained in the uterus, his opinion, corroborated by that of Velpeau, was that the presence of the devitalized ovum is not tolerated beyond the ninth month of pregnancy. In one of the cases related from his own experience, the ovum, blighted at six weeks, was not discharged until the beginning of the ninth month of utero-gestation. On the subject of diagnosis, the point of paramount practical importance to determine was, whether the patient carried a living ovum or not. In addition to the history of the case, the symptoms upon which he placed most reliance were enlargement of the uterus, patulence of its orifice, recurring sanguineous losses, menorrhagia and fœtor of the discharge, though he admitted this last symptom to be as often absent as present. Where the hæmorrhages were not severe he rather counseled an expectant line of treatment, at the same time keeping the discharge in check as much as possible; but that if active interference was required, they could dilate the os uteri with laminaria or sponge tents, and thereby gain access to the interior of the womb and remove the offending matters within by forceps or douching. He showed to the Society an ovum which had been expelled by a lady about seven months after conception, and five months from the time that its vitality had ceased.

Dr. **Churchill** said that he had met with about half a dozen cases similar to those alluded to in the admirable paper of Dr. McClintock, and although he had no actual data to fix the period of retention of the ovum, still they were retained sufficiently long to give rise to great difficulty—and really there was much greater difficulty in practice in these cases than could be imagined from having them described in a paper. It was not easy to resist the one or two disturbing influences which were always found in these cases. A lady told them that she was quite certain she was not pregnant—a remark that could not fail to have some influence on them. He recollected the case of a lady who consulted him with reference to an abdominal tumor. She declared that she was not pregnant; there was regular menstruation, and an examination by means of a sound led to no discharge of blood or water. Subsequently, however, she expelled a blighted fœtus of about four months' growth. Another case he had seen in consultation with Dr. Pollock. It was one of menorrhagia. The lady had lost a good deal of blood, owing, as she said, to her having miscarried some three or four months previously. She was so positive of having miscarried that he (Dr. Churchill) thought probably she was right. He found the uterus enlarged, but not very much so, and a gaping-mouthed womb. For some time the menorrhagia diminished, but subsequently she had a furious attack of it; and he agreed wiih Dr. Pollock to plug and give her a little rye. When Dr. Pollock went to remove the plug he found something protruding from the os uteri, which turned out to be a blighted ovum. He (Dr. Churchill) did not know a case in which it was more difficult to give a positive opinion. Fortunately, the treatment was not so uncertain, because, in the first place, they must restrain the loss of blood. That effect would be produced by plugging, and probably the best remedy for menorrhagia would be the best remedy in a case of the nature under discussion.

The **President** said they were quite at sea with respect to the length of time a dead ovum might be retained, and he did not think there was sufficient data to clear up that point. He had twice been able to come to a pretty fair conclusion as to the period at which an ovum might be retained after its death, and both were comparatively short spaces of time. One was a lady who had been in the memorable Abergele accident, she being then five months pregnant. At the time of the occurrence she felt no remarkable effects, but afterwards did not increase in size. Thirteen weeks passed without any abnormal symptom; but at the end of that time profuse hemorrhage set in, after which she was delivered of a dead fœtus, which was no larger than it should have been at the time of the accident. In that case, therefore, the fœtus had been retained thirteen weeks after its death. In the other case a lady came to consult him who said that she had aborted within eight weeks of her time for confinement. Recently she had had a scanty menstrual period, and suffered a good deal of pain at the time. When he saw the uterus it was considerable in size; but he did not make any examination with the sound; prescribed for her, and told her to come to him after the next menstrual period. On seeing her again she told him she had since menstruated, this time rather profusely, and suffered a good deal of pain. On examining her uterus he found that it was not enlarged. He introduced a sound, and a few days afterwards she expelled a small ovum. There was no doubt that several months elapsed between the time he passed the sound and the period when she thought she had aborted. In these cases the questions both of diagnosis and treatment were involved. If the symptoms of which she complained were due to the retention of the ovum, the duty of the medical practitioner was to get rid of it. If, on the other hand, there were other unhealthy conditions, they should have been treated. Of course they all knew that portions of the ovum might be retained for a considerable time. He did not think a fœtid discharge was common in these cases.

The Weight of Infants.

From an article by M. Bouchut in the *Gazette des Hopitaux*, July, 1874, the following abstract is made:—

In several, he found the average weights of children, and of the milk-supply of nurses, lower in hospitals than those of the town—a fact we recommend to the notice of parochial authorities. The weight of infants at birth varies from 3 to 4 kilogrammes; 5, 6, and 7 kilogrammes are exceptional.

Boys are heavier than girls. Male average 3 k. 20; female average 2 k. 91 (Quetelet and Winckel).

Multiparæ bear ordinarily heavier children than primiparæ; but as Duncan and Foisy have shown, the age of the mother has an influence on the weight of the child, thirty to thirty-five years affording the highest averages. Individual peculiarities in the parents vary the results. Many circumstances tend to lessen the weight of the child at birth: debilitated and lymphatic constitutions; frequent and abundant vomitings of pregnancy; scrofula, and, above all, syphilis; hemorrhage, when considerable; and, according to Foisy, the presence of varices.

Chaussier first established the fact, confirmed by Siebold and Winckel, that an infant loses weight during the first few days of life. Bouchaud found exceptions to this rule in about one case in fifteen. From 30 to 100 grammes are lost each day for three days, after which the weight again increases. The loss is less in private life, under good influences, than in hospitals or maternities and among the children of the abandoned.

At the end of the second day, a child will weigh 100 grammes less than at birth —a diminution which corresponds to the excretion of the meconium. On the seventh day the weight should be the same as at birth. From the latter period to the age of five months it should increase on an average of 175 grammes per week, or about 25 grammes per day. After the fifth month it will not increase more than an average of 15 grammes per day. At the age of five months the infant should weigh twice what it did at birth. At sixteen months old its weight will be only double what it was at five months. These laws must not be too rigorously applied; some children may gain only 15 or 20 grammes per day, and be in excellent health. The important point is, that there be a steady gain of some grammes. To determine the quantity of milk, the child is weighed before and after each sucking. There should be from 80 to 100 grammes for each meal; when under 50, the nurse is insufficient. At one month the child should receive 630 grammes per day; in the second, 700 grammes; third, 840 grammes; and in the fourth, 950 grammes. These results are derived from hospital observation; in private they were greater. If the infant does not thrive, if its weight is not steadily increasing, or if the quantity of milk taken at each nursing is insufficient, the nurse should be changed. Temporary illness on the part of the nurse matters not; but if the disease is bad, or prolonged, and likely to affect the milk, a change of wet-nurse is necessary.

On Cephalematoma.

The Paris correspondent of the *Irish Hospital Gazette*, February, 1875, gives some notice of a case of cephalematoma, under the care of M. Depaul:—

This he defined as a tumor situated on the skull, and consisting of extravasated blood between the bone and pericranium. He added that a cephalematoma must not be confounded with the "caput succedaneum," improperly termed "bosse sanguine" (sanguineous tumor) by the French, which is observed in lingering labors. Both tumors are quite different in their anatomical and clinical characters; the caput succedaneum is situated in the subcutaneous cellular tissue, whereas the cephalematoma is situated between the bone and pericranium; in the former, the skin is of a violet hue and infiltrated; in the latter, on the contrary, the color of the skin is unaltered, as may be seen in the case under notice. It may, however, happen that a cephalematoma and a caput succedaneum may co-exist at the same place; in this case, the distinctive characters of both the tumors will be noticed. The cephalematoma has nothing to do with the skin; it is formed by the detachment of the vessels that unite the bone with the pericranium, and this would explain why the color of the skin undergoes no change. The cephalematoma presents itself ordinarily under the form of an indolent, circumscribed, soft, and fluctuating tumor. The fluctuation in the present case is very manifest, and, added to this, we have a sign which is very important in the diagnosis of this sort of tumors, a sign which may be considered almost pathognomonic of the cephalematoma; in exploring this tumor, a hard, osseous circle is felt around it, which may lead one to suppose that the central portion of the bony plate, over which the tumor is situated, is worn and perforated, and that there is a hernia of the brain, with or without its membranes.

In the case under notice, the tumor is situated on the right parietal bone, which would appear to be the bone of predilection for this affection. It is of an oblong shape, which is rather unusual, as cephalematomata are generally of a kidney or bean shape; but, it must be added, continued the learned professor, these tumors sometimes assume a triangular or other form. According to this description, there can be no doubt that the tumor on the head of the child in question is a cephalematoma.

Besides the above characters, another circumstance contributes to the confirmation of the diagnosis. The tumor did not exist, or rather was not apparent, when the child was born, but showed itself only after a certain time, which is generally the case with this class of tumors; or it would perhaps be more correct to say, that at the birth of the child, the tumor is so small that it is scarcely visible; sometimes, indeed, it does not exist at all, and is found after birth. When once found, the tumor goes on increasing in size for some days, which is the reverse of what takes place with the caput succedaneum, which, at the birth of the child, is at the height of its development, and generally disappears in twenty-four or thirty-six hours, leaving on the skin a slight degree of ecchymosis.

As to the etiology of these tumors (cephalematomata), M. Depaul states that there is a diversity of opinion, some contending that they are due to disease of the bone, while others believe that they are brought on by the detachment of the pericranium, the result of a lingering labor, and the unequal pressure exercised by the maternal parts on the head of the child during parturition. M. Depaul is in favor of the latter theory, which fully explains the *rationale* of the formation of these tumors, as cephalematomata generally occur on that side of the pelvis, which is comparatively empty, and it is probable that they are produced at the same time as the caput succedaneum.

In the former case, the blood, owing to the unequal pressure, is driven to the parts where there is the least resistance—in other words, congestion is produced, which ends in rupture of the blood vessels, and it is this extravasation of blood which constitutes the cephalematomata. This, however, is mere theory, though the present case would seem to give it an air of plausibility, as the tumor is found to exist on the right parietal, and it is just that part of the skull which, during labor, corresponded to the part where there was the least pressure.

The prognosis of cephalematomata is in general favorable, although much has been said to the contrary, and they generally get well without any medical or surgical interference. M. Depaul left the case to nature and merely applied a lotion of wine and water, not with the hope of its dissolving the tumor, but to show its mother that something is being done to make it disappear.

The treatment is simply one of expectation, and M. Depaul strongly deprecates the practice of opening these tumors, which is attended with real danger. In general these tumors disappear spontaneously after a lapse of from three to six weeks, and sometimes even longer. When left to themselves, the extravasated blood becomes enveloped by a thin, osseous shell, and after a certain time, the whole is absorbed and disappears.

M. Depaul concluded by relating the case of a woman he had delivered several times, all of whose children presented cephalematomata, which disappeared after a short time. He has seen these children up to the age of five or six years, when not the slightest trace of tumor was to be found on their heads.

II. DISEASES OF WOMEN.

Dysmenorrhœa Treated by Nitrite of Amyl and Belladonna.

The New York *Medical Record*, January 2, 1875, gives an abstract of a paper read by Dr. Mary Putnam Jacobi, upon "Nitrite of Amyl and Belladonna in Dysmenorrhœa."

The clinical history of three cases was given to illustrate the method of operation of the above remedies. All three were cases of severe spasmodic dysmenorrhœa. They were treated by administering belladonna for several days previous to the recurrence of menstruation, and nitrite of amyl by inhalation during the paroxysm. This treatment, it was believed, had a rational basis.

The argument in its support was founded upon the data furnished in the second case, in which were manifest three sets of phenomena:

(1) Vomiting, pallor of skin, cold hands and feet.

(2) Extraordinary peristaltic action of the intestines.

(3) Spasmodic pain in the uterus.

All these point towards one element, namely, that of spasmodic contraction of blood-vessels.

First, the so-called sympathy between the uterus and the stomach, and between the stomach and brain, were fully considered in their dependence and interdependence with reference to the symptom, *vomiting.*

It was believed, reasoning from the experiments of Schiff and others, that the vomiting of pregnancy, vomiting of sea-sickness, and many cases analogous in character, was due to the same cause, namely, anæmia of the brain, producing spasmodic contraction of blood-vessels at the base.

It was further argued that anæmia of the intestines produces contractions of increased peristalsis, due to spasmodic contraction of blood-vessels.

There are three conditions in which a hollow muscular organ can contract in the state of vacuity.

(1) After direct irritation of its nerves.

(2) After direct irritation of its muscular fibre.

(3) After changes in its circulation.

A detailed account of six experiments was given. The experiments had been performed upon rabbits. The abdominal cavity was opened, the intestines drawn out and carefully protected in a bag of oil-silk, which was kept immersed in a vessel of warm water; uterus exposed, and the abdominal aorta exposed. The aorta was then compressed with a ligature, and the result carefully noted.

Several waves of peristalsis ran *down* the rectum, but never in a contrary direction. Contraction of the uterus occurred, and was distinctly visible at the middle third of the organ. Upon removal of the ligature the contractions ceased. The time at which contractions appeared after compression of the aorta was made, also the duration of the contraction after compression had been removed, were carefully noted. The conclusion made from the experiments was, that tonic contractions of the uterus may be excited by occlusion of the aorta, and that such contractions continue from one to four minutes after compression has been removed. Clonic contractions also occurred, after the type of contractions of masses of smooth muscular fibre.

What bearing do the results of these experiments have upon the treatment of spasmodic dysmenorrhœa?

The pain in these cases is dependent upon tonic and clonic contraction of the uterus.

These, in turn, are dependent upon some cause. Of the conditions in which a hollow muscular organ can contract in a state of vacuity, direct irritation of muscular fibre and direct irritation of nerves were excluded. Consequently we are obilged to fall back upon changes in the circulation of the uterine walls. If the change of the blood-vessels passes to an irritation, spasmodic contraction must take place, and uterine contractions will be determined by local anæmia.

Spasmodic contraction of blood-vessels resulting from irritation of vasco-motor nerves is the cause of the pain of spasmodic dysmenorrhœa. It is upon these considerations that the remedies suggested are used. The *secondary* effect of belladonna is dilatation of the blood vessels.

Belladonna is to be administered, therefore, previous to the occurrence of menstruation, for the reason that it is desirable to obtain the *secondary* effects of the remedy.

Nitrite of amyl is used for the purpose of relaxing blood-vessels. This is in accordance with the admitted physiological action of the remedy.

This method of treatment, of course, is more especially adapted to cases of spasmodic dysmenorrhœa; but it has been found, both in the experience of the author of the paper, and in that of others, that great relief may be afforded even in those cases in which the dysmenorrhœa depended upon displacements, constriction of the cervix, etc.

The method is, to administer belladonna in ordinary doses for several days previous to the occurrence of the menstrual flow, and when pain comes, to administer by inhalation from two to six drops of the nitrite of amyl p. r. n. In one case a single drop of amyl was all that was required.

Polypus of the Uterus, Treated by the Internal Administration of Ergot.

Dr. DANIEL F. COLLINS, M. D., of New York, writes to the New York *Medical Record*, January 30th:—

Mrs. E. S., a short, thin woman, of sallow complexion, and the mother of four children, sent for me to attend her, as she said, for a " womb trouble." On calling, I found her exhausted from uterine hemorrhage, and in a very dangerous condition.

In answer to my questions, she stated that she was sick and in delicate health for the past six months, and had suffered a great deal from "flooding," and that these attacks generally came on every eight or ten days. But for the last two months she lost more or less blood all the time.

Having checked the hemorrhage I left, promising to call the following day.

On calling next morning I found her free from any symptoms of flooding, but in a very weak condition. On introducing my finger through the os uteri, I found at the upper and posterior portion of the organ a round substance or tumor about the size of a small orange; passing my finger around it I found it was impossible to pass even the point of my finger between the base of the tumor and the side of the womb, and that the tumor seemed to be closely attached to the wall of the uterus. The patient being very weak and nervous from loss of blood, I deferred further examination until next morning, which further examination satisfied my mind that it was impossible to remove the tumor *in its present* condition and relation to the uterine wall without a considerable and dangerous loss of blood, which, considering the weak and exhausted condition of my patient, I did not feel justified in risking.

After a consideration of the case, I decided on giving moderate doses of ergot in combination with a little opium, in order to bring on such contractions of the uterus as would separate the polypus or tumor from the uterine wall, sufficiently for me to either strangulate the tumor or remove by excision.

On paying my visit next morning, the patient complained of "bearing down pains," and said that she suffered as much as if she were in the beginning of labor.

On making an examination I at first found considerable difficulty in introducing my finger through the os, owing in the first place to the state of contraction the uterus was in, and secondly to the tumor pressing down from the fundus of the womb, and as if blocking up the passage.

On succeeding in introducing my finger, I found that the body of the tumor or polypus had entirely separated from the wall of the uterus, and was but now held by a small pedicle about three quarters of an inch in length, by a little less than half an inch in diameter.

After a careful examination, I could find no trace of pulsation in the pedicle, but found it soft, and to the touch not unlike that of the umbilical cord.

Taking a gentle but firm hold of the polypus, I turned it round and round several times and then withdrew my hand.

After cautioning my patient against any unnecessary exertion, and telling her to send for me if there was any change in her condition, I left.

On the following morning I found on examination that the pedicle had softened a good deal owing to the twisting the previous day, and discovering no trace of pulsation in it, I at once passed up a curved blunt-pointed scissors, and with one clip severed the connection between the polypus and the wall of the uterus. I immediately gave the patient a dose of ergot which brought on firm contractions in a short time. The polypus was expelled, the patient not having lost a teaspooonful of blood.

The polypus was of fibroid character, and measured two and one half inches long by two and one quarter inches in diameter, and was hollow, containing a lot of grumous blood.

The patient rapidly recovered and is now strong and healthy, and has had no hemorrhage since the removal of the polypus, and is quite free from "womb trouble."

Having examined several of the latest works on uterine diseases, I cannot find in any of them any allusion to the exhibition of ergot in cases similar to the above. That is, giving ergot as a means of separating, as far as its attachments will allow, the body of a tumor or polypus from the wall of the womb before removal.

Hydatids Simulating Pregnancy.

The following case reported in the Leavenworth *Medical Herald*, December, 1874, by Dr. J. K. Osborn, will be found of interest:—

Mrs G., after being three times pregnant, in consequence of the cessation of the catamenia, was soon attacked with vomiting. The abdomen was increased in size and became very tender to the touch; the legs became œdematous and breathing short; (as she thought) these symptoms must arise from twins. I was summoned to her assistance October 3, 1874. At the above date she was at about the sixth month of supposed pregnancy. The swelling of the belly became rapidly enormous, the œdema extended over the trunk, and respiration difficult, when at length labor pains suddenly set in. Considerable hemorrhage ensued, which was at first checked by cold applications, but soon afterwards returned more violent than before. At the same time a large mass of hydatids, as large as a child's head at full term, were discharged. Breathing slowly and laboriously. The fundus uteri was about three inches above the navel, and the tumor formed by the womb was regular; not elongated, as is usually the case in this disease. The os uteri was dilated to the size of a half dollar, and was very tender to the touch. Masses of hydatids projected from it into the vagina, with constant hemorrhage. I ordered tincture of castor every twenty minutes, spirituous frictions of the abdomen, and the injection into the uterus of a solution of salt, acidulated with vinegar. In consequence, the labor pains, which had almost ceased, were speedily renewed, and rapidly increased in strength. Masses of hydatids were at the same time discharged, and ere long the hemorrhage abated considerably. In the course of two hours the fundus uteri had descended to within three inches above the pelvis; in the course of the day it descended still lower; the hemorrhage ceased, a warm perspiration broke out, accompanied with rising pulse, and the patient soon recovered. Milk appeared in the breasts on the third day, but receded again without any bad consequences. The hydatids weighed seven pounds. They were attached to the remains of a membrana decidua.

Vaginal Irritations from Rectal Diseases.

The annexed illustrative cases are given in the Detroit *Review of Medicine and Pharmacy*, February, 1875, by Dr. E. W. Jenks:—

Nymphomania Caused by Fissure of the Anus.—M. R., aged 20, unmarried, was sent to me by one of my former pupils, as a patient that was extremely unfortunate, on account of her insatiable venereal appetite, but that it had existed only a short time, and that as yet she had not been guilty of any offense in that direction beyond masturbation. She was put in a quiet boarding house, and under the most careful surveillance. Every symptom indicated some pelvic disorder, rather than a mental disease. Examination of the generative organs revealed no indication of their disease beyond an undue congestion of the external organs, and especially in the neighborhood of the clitoris, where there was a slight abrasion. I learned that defecation was followed by excruciating pain, and upon examining the rectum I found a broad, irritable ulcer, just within the verge of the anus. Ether was administered by Dr. Walker, when I made forcible dilatation of the *sphincter ani externum* after the manner first suggested by Récamier. It is needless for my present purpos
to follow up the details of treatment in this and the other cases reported in th
paper. I will only add that it was a matter of astonishment to the few medic
gentlemen familiar with the history of this patient to observe that with the cure
the anal fissure the nymphomania disappeared. She has since married, and whe
saw her last she informed me that she was in excellent health, and happy in h
new relationship.

Vaginismus Caused by Fissure of the Anus.—Mrs. S., aged 34, had consider
herself for some years a sufferer from uterine disease. When I first saw her
was confined to her bed, and had been most of the time for the preceding
months. She had been told by her medical attendant that in all probability there
some disorder of the womb that was producing all her physical troubles. The l
treatment advised consisted of emollient and astringent vaginal washes. Every sy
tom of which I could learn caused me to think there was some form of disea
the uterus or its annexes. Upon attempting to make a digital examination o
generative organs, I was obliged to desist on account of the severe spasmodic
my finger produced at the ostium vaginæ. My diagnosis of the case was va
mus, which was further corroborated when I learned that coitus had been for
time impossible, and the few attempts at it had been followed by days of s

At this time my attention was not directed to the rectum from any symptom or complaint of the patient, but at a subsequent visit I found her exhibiting symptoms of the most intense agony, and upon inquiry as to its cause, learned that her bowels had just moved, and that for more than two years, whenever she had had an evacuation of the bowels, her sufferings had been of like character, while for the past few months they had been gradually increasing in severity.

I then attempted to make a digital examination of the rectum, but soon found that it caused such severe pain that I deferred it two days, when ether was administered. I then discovered the cause of the patient's intense suffering to be due to a broad and unusually deep fissure within the anus, together with one of those small and extremely sensitive excrescences so frequently found cropping out from the mucous membrane of this locality, as associates of irritable ulcers of the rectum. I removed the small growth, and then forcibly dilated the sphincter after the usual method. The patient made a good recovery.

A Case of Spontaneous Expulsion of an Ovarian Cyst.

Dr. Wm. L. Dunn, of Glade Spring, Washington county, Va., in the *Transactions of the Virginia Medical Society*, 1874, says:—

I was called to Mrs. J. H., June 1st, 1874, who, until my arrival (6 p. m.), was being attended by a Mr. Barbro, a self-constituted doctor. He informed me that the patient was a multipara, and had been in labor for the past thirty-six hours. He had administered ergot freely during the day, and at 5½ p. m. the pains were so severe that he had given ½ grain of sulphate of morphia, which had now checked them.

On entering the room I detected at once that the patient was laboring under a severe constitutional shock. She informed that she was "nearly dead, that the pains bore up instead of down, and that she felt as if she was coming in two for the past hour." On placing my hand upon her abdomen, the fundus of the womb felt as if it had separated from the right and right anterior half. The perineum was enormously distended—so much so as to make the impression that the child's head was in the vulva.

On introducing my right forefinger into the vagina, I discovered a fluctuating tumor in Douglass' cul-de-sac. With my left index finger passed into the rectum, I could not bring its end within less than three inches of the tip of the finger in the vagina. The fœtal head, having emerged from the os uteri, was pressing firmly from above upon the upper surface of the tumor. The pressure thus exerted upon the tumor had caused it to tear an opening of two inches in length through the upper portion of the posterior vaginal wall extending through Douglass' cul-de-sac; but this was not of sufficient size to permit the tumor to pass uncovered into the vaginal canal. Nevertheless it was pressed so strongly against the perineum as to cause dilatation of the vulva to the extent mentioned above. The elevation of the womb due to the resistance to exit of the fœtal head, and the elongated distension of the perineum caused by the pressure of the tumor upon it, gave the vagina a length of eleven inches as measured along its posterior wall.

There was no opportunity for consultation. Accordingly with my finger I enlarged the rent already made in the posterior vaginal wall, and bore firmly upon the perineum during "a pain," which forced the tumor through the enlarged rent into the vaginal cavity; the pedicle of the tumor was also ruptured by the same pain. It was now easy to extract the tumor lying loosely in the vagina with my obstetrical forceps.

The contraction of the abdominal muscles during the extraction of the tumor through the vulva, forced the fœtus into the abdominal cavity through the ope in the posterior wall of the vagina. I immediately introduced my hand in abdomen through the vaginal rent, turned and delivered the child.

On careful examination of the patient and the expelled tumor, the latter found to be the right ovary, which had undergone a multilocular cystic degenera It weighed thirty-three ounces. By its pressure it had thinned the right wall of uterus to about one-third of its normal thickness.

The fundus of the uterus resumed its normal position soon after the deliver The entire amount of hemorrhage during the operation was scarcely more than pints. In my opinion this would have been much more had it not been for favorable action of the ergot. I prescribed ½ grain of morphia to be given every hours, and one ounce of brandy every hour.

On my return the next morning I found my patient conversing cheerfully her husband. There was no marked soreness on pressure over the pubic region, was there any at any subsequent time. There was, however, sharp pain, with derness on pressure, commencing at the upper border of the right lumbar regio which extended through the umbilical to the left lumbar region, due to circum scribed peritonitis occasioned probably by the injury inflicted by the fœtus, as was about the cross position it occupied when in the cavity of the abdomen.

On the 5th.—There was some congestion of the lower portion of the lungs, whi was accompanied by moderate hemoptysis.

On the 11th.—The patient had an attack of colic caused by eating the pulp of orange.

I continued to treat her with ½ grain doses of sulphate of morphia every hours, and by external applications of spirits of turpentine. Her bowels moved every fourth day with enemata; and after the tenth, every second day.

The opening into Douglass' cul-de-sac did not close until the 20th, which circ stance answered an excellent purpose by allowing a means of draining the abdo nal cavity.

After a protracted convalescence the patient's recovery was complete.

Case of Normal Ovariotomy.

Dr. T. T. Sabine, M. D., reported the following case in the New York *Journal*, January, 1875:—

A. B., aged twenty-five; single; admitted June 17, 1874. Patient was perf well up to eight years ago, at which time, while menstruating, she took a cold which was followed by cessation of the menstrual flow, and a very severe attac neuralgic pain in the left iliac fossa and left limb, lasting seven weeks, and resembli only in much milder form, the pain which she has since suffered. The treat was by leeches, wet cups, etc.

After this the catamenia became extremely painful, and dysmenorrhœa stant for four years. At this time (four years ago), the dysmenorrhœa was more intense, and was accompanied by severe neuralgic pain, limited to the of the left ovary. Patient remained in this condition until eighteen months when there was a sudden increase in the severity of the attacks, probably frequent exposure to wet and cold. The catamenia ceased for three months corresponding to the menstrual periods there were attacks of intense ovarian lasting about ten days. The treatment at this time was by leeches and ice and the internal administration of morphine.

In the spring of 1873 patient suffered attacks of increased severity, the pain being so great as to produce convulsions, and was only relieved by chloroform.

In September, 1873, she was operated on at the Woman's Hospital in this city, for dysmenorrhœa, but without relief. Subsequently an operation was performed for vaginismus, with a similar result.

During the past year patient has hardly ever been entirely free from pain, and has been unable to bear the weight of the body on the left limb, on account of the severe pain which it excited in the region of the left ovary.

The medical treatment of the paroxysms has been the free administration of morphine. In 1872 morphine was given in doses of half a grain to a grain and a half, repeated as required. As the attacks increased in violence, morphine failed to give relief, and chloroform or ether was given by inhalation.

On admission, patient is in fair general condition. She can get about the ward on crutches, but cannot bear the weight of the body on the left limb, which is flexed and lies across the right as in morbus coxarius.

Physical examination reveals intense vaginismus, and exquisite tenderness in the region of the left ovary. By conjoined manipulation the ovaries can be easily felt, and are of normal size. After this examination, as after every previous one, patient suffered great pain for two or three days.

August 8th.—Operation by Dr. T. T. Sabine. Temperature of the operating-room 80°. Patient being etherized, an incision was made in the median line from a point five inches above the pubes downward to within an inch of the latter point. The fascia covering the rectus muscle was divided, the incision carried along the inner edge of this muscle down to the peritonæum, and after all hemorrhage had ceased it was carefully divided upon a director.

The hand was immediately passed through the wound to the fundus of the uterus, and thence along the broad ligament to the left ovary, which was found free from adhesions, and was readily seized and brought out at the wound. An eye-probe, threaded with two carbolized cat-gut ligatures, was passed through the broad ligament just below the ovary, the ligatures firmly tied on either side, the ovary cut off with scissors, and the pedicle, which was perfectly dry, replaced in the abdominal cavity, into which only a few drops of blood had escaped from the wound.

Four silver sutures, passing through the abdominal parietes and peritonæum on either side, were introduced and the wound tightly closed. The integument was brought together between the wires by four silk sutures, and straps of adhesive plaster, with compress and bandage, applied.

The ovary was of natural size, and on section the stroma and capsule appeared normal. The very unusual opportunity was afforded of examining a corpus luteum, the exact age of which was known, immediately after the removal of the ovary from the living body. The patient had menstruated just three weeks prior to the operation, and the corpus luteum, examined by Dr. J. C. Dalton, answered perfectly the description of the one represented in his work on "Human Physiology," page 566, of the fourth edition, excepting that it projected much more prominently from the surface of the ovary.

Evening.—Patient has rallied well from the ether. Complained of diffuse pain in the abdomen, which was controlled by morphine administered hypodermically. No nausea.

The patient was discharged cured September 12th, and menstruated subsequently with entire absence of pain.

Electricity in Amenorrhœa.

The subjoined case is given by Dr. P. S. Hayes, in the *Chicago Medical Examiner*, January 1, 1875:—

Mrs. H., twenty-three years of age, came under observation June 7th, 1873. Has always been of delicate constitution, and suffered from numerous ailments. Her first menstrual period occurred when she was seventeen years of age. Since that event, at irregular periods, there has been a slight sanguineous discharge from the vagina each month, she has had a return of pain in the back, limbs and head, accompanied occasionally by epistaxis—she is habitually constipated.

An examination made by Dr. A. Reeves Jackson, disclosed an infantile uterus. The sound passing into the uterus measured only three-fourths of an inch; neither ovary was distinguishable.

Treatment.—The uterus was dilated by means of the sponge tent which, however, gave rise to a slight peritonitis. The depth of the uterine cavity had been increased to one inch.

During the period of treatment, there occurred a sanguineous discharge from the vagina.

After an interval of five months, she resumed treatment, and Dr. Hayes employed the Faradic current, passing it transversely through the pelvis. Afterwards the galvanic current from fifteen elements was employed in conjunction with the Faradic. Improvement was only very slight, and then both currents were applied to the canal and cervix. After twenty-four applications of electricity, the uterus appeared to be in the same condition as at the commencement of treatment.

Case II. Amenorrhœa occurring after menstruation had been established, cured by the use of electricity.

Mrs. B., colored, twenty-seven years of age, began to menstruate at the age of fifteen, and was married at eighteen. Since her marriage, her health became much impaired, and her catamenia irregular both in respect to time and quantity. Three or four months frequently intervened between them. She has never been pregnant. She complains of an irritating leucorrhœal discharge and of pain in the head and in the mammary and ovarian regions, and of a frequent and painful desire to micturate —bowels constipated.

On examination by Dr. Jackson, it was found that the uterus was in its normal position, cervix a little elongated, the os was somewhat nodular, and had a tenacious mucous plug projecting from it. The sensitiveness of the vaginal walls was abnormal. The breasts were long and flabby.

Treatment.—A pill of aloes and myrrh, and electricity. Dr. P. S. Hayes applied the Faradic current, continued through ten minutes, as follows: One of the electrodes was placed alternately over each ovary and the uterus, the other electrode over either sacro-iliac synchondrosis, the current being frequently reversed, making the electrodes alternately positive and negative. The treatment was followed by a return of the catamenia, at first scanty and lasting for one day, the last two each continued three days and were quite normal in every respect; the disagreeable subjective symptoms had gradually disappeared. Twelve applications of electricity, similar to the one above described, had been given.

The Operation for Vesico-Vaginal Fistula.

In the proceedings of the Société de Chirurgie of Paris, reported in the *Medical Press and Circular*, December, 1874, M. Démarquay stated that he had had occasion to make a series of operations for the cure of recto-vaginal fistulas, and those operations had not been successful. The cause of those failures was due to two things—first, to the accumulation of fæces in the large intestine; secondly to their volume and hardness, and especially to the resistance of the anus when they have to be evacuated. During the efforts of defecation the cicatrix gives way either wholly or partially, and the contents of the bowel pass again into the vagina.

There was, besides, an anatomical condition of failure; it was the tension in the transverse direction of the lower wall of the vagina.

In order to obviate these causes of failure, M. Démarquay adopted the following method with a young woman suffering from a large recto-vaginal fistula, produced by an awkward slip of a cutting instrument in the removal of a uterine polypus.

The operation is divided into two stages.

The first stage consists in cutting through the posterior wall of the rectum, as in the operation for fistula in ano, as far as the coccyx. This, in the first place, relaxes considerably the posterior wall of the vagina; and, secondly, it allows one to operate on the fistula through the rectum, having it completely in view; thirdly, and lastly, it allows the contents of the bowel to escape freely.

The second stage, or the operation properly so called, comprehends several details: first, the edges of the fistula are very freely pared by oblique cuts, as in the operation for vesico-vaginal fistula by the American procedure; secondly, the edges having been freely pared and the flow of blood arrested, M. Démarquay inserts one metallic suture by means of Blandin's curved needles, passing it through the posterior wall of the vagina; he unites the cut surfaces completely by a number of points of suture, of which the threads are knotted in the vagina, as in vesico-vaginal fistula. This is easily done, by reason of the relaxation of the parts consequent on the deep incision of the sphincter. Thanks to this incision, not only do the contents of the lage intestine remain but a short time in it, but their evacuation is easily effected, when necessary, by the aid of a gentle laxative.

Injections of cold water are made each morning into the vagina. As there is no tension in the reunited parts, the threads may be left in as long as you like. M. Démarquay proposes to leave them in eight or ten days.

As to the first step of the operation, which consists in incising deeply the margin of the anus, what takes place is this. Little by little the wound cicatrizes, and heals perfectly, just as in the operation for fistula in ano.

M. Démarquay's patient got cured of her fistula, and of the preliminary operation. She retained the contents of the bowels as well as if the sphincter had not been cut through.

To those who may consider the preliminary operation proposed by M. Démarquay serious, the author of this method replies that he has often performed it with the view of facilitating operations on the rectum, and that it was unattended by any disagreeable consequences; and, then, adds M. Démarquay, is there any infirmity more disgusting for a young woman than a vesico-vaginal fistula, and must she not be cured of it at any cost?

III. DISEASES OF CHILDREN.

On Trismus Neonatorum.

A successful case of this very dangerous disease is reported by Dr. GOLDMA the New Orleans *Medical and Surgical Journal*, November, 1874:—

The child was circumcised on the sixth day after birth, and on the same showed tetanic symptoms. By half grain doses of chloral it became quiet an asleep. We then directed the same dose to be given every time the child a from its slumber. Our directions for the remainder were—not to touch the c unless it was absolutely necessary; to avoid all loud talking, slamming of door even fanning, although the little sufferer perspired profusely sometimes; to three times daily an enema to empty the bowels; to draw the milk from the b of the mother by means of the breast pump, and to give it by a teaspoon or a ing bottle with an India rubber nipple. This was at first not easily performed after a day of quiet had passed, it offered less difficulty, and the child swall eagerly, though slowly, the small quantity of nourishment thus allotted to Our direction to give directly on awaking a dose of the medicine was strictl lowed, and in this manner the spasms were kept away, although not compl The greatest difficulty attended the efforts for evacuation of the bowels, which hardly be moved. We used rhubarb, but it failed to act, and it appeared that, the tonic spasms of the voluntary muscles could be nearly controlled by the ch the muscular fibres of the intestines did not yield to its influence. We consequ gave one grain of calomel in a little syrup (on the third day), and, as the sp returned repeatedly at night, increased the dose of the chloral to one grain were prompted to do this because we observed considerable tenesmus, which matters still more distressing for the mother, to whom we represented the si as not so serious, in order to keep her mind easy, and thus to avoid having the ishment the child had to rely on impaired. The 6th night vomiting e together with spasms, and recurred several times. Having been called, we o the solution of the chloral, 1½ grains pro dosi, per anum, (which we contin to the termination of the case.) Also ordered the breast of the mother, w been very much chagrined the day preceding, to be emptied by the breas and the milk to be thrown away; the child to have as nourishment a thin de of arrow-root and, from time to time, a teaspoonful of fresh rain water. T iting ceased, and the fresh milk from the mother's breast was again borne well day. The spasms did not return on the 7th and 8th days, but again we observ mus, and therefore administered on that and the next day one grain of calom morning. The ninth day a slight spasm took place, and the same thing on The 11th and 12th days brought nothing remarkable, the spasms not having Yet the child could not open the mouth; there was no opisthotonos, yet muscles had gained such a preponderance over the extensors, that the li still remained firmly clenched, although sometimes they could be opene any trouble. The injections of the chloral were given all this time, a times in twenty-four hours. On the 13th day the child gaped several t ing the mouth wide and without giving any signs of pain, to the de parents. We thereon directed the injection of chloral to be reduced t twenty-four hours, and gave by the mouth some rhubarb and magnesi acted perfectly. On the 15th day considerable mucus appeared in from the bowels, and once even a drop of blood with it. We ordered to stop the chloral injections, and substituted those of boiled starch with ¼ grain of acetate of lead and ½ drop of laudanum Sydenhami. The mucous discharges not ceasing the next day (the 16th), we had the same injections continued, and by this means soon overcame that trouble. On the 18th day the child took the breast for the first time again. It was, however, by means of unyielding perseverance only that this was effected. It seems that the child had, so to speak, forgotten the mechanism of sucking, and only after many attempts he managed to do it again. The bowels moving still sluggishly, 3 grains of Hufland's powder were given every day. Even this could be left off on the 20th day, when the passages came regularly several times daily, as with every healthy child it ought to be.

What I look upon as particularly important in this case, is the benefit we derived from the use of the calomel, which produced liquid passages, and thus relieved, and afterwards prevented, the tenesmus that always gave rise to tetanic spasm. The chloral hydrate alone was not adequate to effect both. As for the use of the chloral by injections, it is in my opinion even preferable to the use by the mouth, inasmuch as the difficulty of swallowing is often not to be overcome, while the enemata can be made small and very gradually introduced into the rectum. Their long continued use brought on some irritation of the lower intestine, which, however, was not of a formidable character.

The Pulmonary Catarrh of Children.

Dr. Eustace Smith says of this disease in the *Lancet*, December 26, 1874:—

In the early stage a pulmonary catarrh may be readily checked by confinement to bed, the repeated application of weak mustard poultices to the chest and back, and the administration of frequent small doses of ipecacuanha wine in a simple saline draught. If the bronchitis be a severe one, counter-irritation is very important, but strong applications are not required. It is better to act slowly upon a large surface of the skin than rapidly upon a small surface. For an infant of twelve months old one part of flour of mustard may be added to six parts of linseed meal. The poultice should be made with warm, but not boiling water, and should be large enough to cover the whole of either the chest or back. It may be kept in contact with the skin for three, four, or five hours, or as long as the patient is able to bear it. For older children a larger proportion of mustard may be used, but it should always be sufficiently diluted with linseed meal to allow the application being kept upon the skin for several hours in succession without producing too severe an irritation.

In giving medicines at this time care should be taken to adapt the drug to the stage the catarrh has reached, for much mischief may be done by heedless dosing. The rule cannot be too rigidly followed, that in an early stage of pulmonary catarrh, while the bronchial mucous membrane is much swollen, and before secretion has become free, all stimulating expectorants are injurious. At this stage, ammonia, squill, tolu, and the other bronchial stimulants, instead of promoting secretion, only make the cough harder and the chest tighter, and aggravate the irritation which it is our object to allay. Even the old plan of leeching the chest and drugging with antimony and calomel causes scarcely greater mischief to the child than the modern method of reckless stimulation with ammonia and brandy. In an early stage of the disease, when the oppression of the chest is great and the dyspnœa troublesome, such treatment only increases the distress of the patient, and promotes the extension of the bronchitic inflammation to the air-cells.

Many a case of catarrhal pneumonia has owed its origin to no other cause than injudicious treatment of a pulmonary catarrh. The greatest and most immediate benefit is obtained by medicines which excite the action of the skin and encourage free secretion from the bronchial tubes. If we can do this without at the same time depressing the patient's strength, we adopt the readiest means to relieve his suffering and hasten his ultimate recovery. For a child of one year old five drops each of ipecacuanha and antimonial wines given every three hours in a simple saline draught will have the effect desired. If any depression seem to be induced by the mixture, a few drops of spirits of chloroform may be added to each dose, or a few drops of brandy may be given occasionally in addition. An emetic dose of ipecacuanha given early in the disease is useful in loosening the cough and relieving the tightness of the chest. This treatment, combined with confinement to one room kept at an even temperature, and the application of weak mustard poultices, as before described, will soon produce an improvement in the symptoms; afterwards, when secretion is free and the oppression has been removed, a mixture containing ammonia and squill, with small doses of paregoric, will prove of material assistance in completing the cure. On account of their tendency to collapse of the lung, very young infants suffering from pulmonary catarrh should be carefully watched, so that any unfavorable change in the symptoms may be immediately noted. Thus, if the breathing become shallow, and the face at all livid or dusky, they should be at once roused if asleep, and forced to exert their inspiratory power. When an infant cries, his inspirations are much deeper than when he is quiet. A cold wet sponge may be suddenly applied to the naked chest, or vigorous friction may be used to the thorax. An emetic is also useful to clear away the phlegm from the tubes and promote deep inspirations. Older children should be confined strictly to bed if the catarrh be at all severe; for by this means not only do we protect the patient from a fresh chill, but we also insure a necessary amount of rest. A sick or feverish child requires *repose;* his mind should be kept unexcited and his body quiet; and to put him to bed is the most effectual way of accomplishing this object. Violent purgation is more injurious than beneficial in these cases, but care should taken that the bowels are properly relieved. It is well to promote the flow of bile by an occasional dose of gray powder. The diet should be simple, and may wisely be limited to milk and broth so long as the cough continues hard and the breathing much oppressed. In proportion, however, as the cough loosens, the diet may be improved, and stimulants may be given if required. Before this they should not be made use of unless the condition of the child imperatively calls for their administration.

When a case of bronchitis is complicated by the occurrence of catarrhal pneumonia, the treatment differs from that already described only by the more energetic use of counter-irritation. The poultices should be large enough to reach completely round the chest, and should be kept in contact with the body long enough to produce very deep redness of the skin. In bad cases, even if some slight blistering of the surface be produced, the effect will not be injurious.

The medicines at first should consist of the ipecacuanha and antimonial mixture, as recommended for bronchitis; but directly any signs of depression are noticed, this must be supplemented by a necessary quantity of stimulant, or, if thought desirable, must be omitted altogether, and be replaced by ammonia and ether given with an alkali. Food must be administered in small quantities at frequent intervals, and should consist of milk with Mellin's patent extract for infants not at the breast, and for older children of milk and broths. If necessary the milk may be guarded by a few drops of the saccharated solution of lime. As the strength fails it must be supported by strong beef-tea, brandy, and the brandy and egg mixture of the "Pharmacopœia."

Babies' Sore Eyes.

Dr. Henry W. Williams, Professor of Ophthalmology at Harvard University, says in the *Boston Medical and Surgical Journal*, January 28, 1875:—

The accoucheur has scarcely begun to congratulate himself on the favorable progress of his case after delivery, when, in many instances, the appearance of ophthalmia in the new-born infant renews his anxieties. The suddenness of the attack, the severity of the symptoms, the delicate state of the mother and child,—making it impossible, in most cases, to have other advice than that of the attending physician,—and the immediate and obvious consequences of his skill or of the want of it; these conditions combine to render such cases of grave importance.

No case should be neglected, when there is even a slight discharge from the eyes of young infants; a mild form of conjunctivitis, however, is often met with, marked by slight redness of the lining of the lids and a little mucous secretion, which requires only frequent cleansing of the eyes with tepid water, and the use of simple ointment along the edges of the lids to prevent their adhesion at night; or, at most, the putting into the eyes, three times a day, a few drops of a solution of two grains of alum or four grains of borax in an ounce of water. These are the cases in which nurses think they accomplish such wonders by spirting into the eyes a stream of breast-milk; a waste of valuable material, but a procedure which does no other harm than to render the nurses self-confident, and to lead them to fatal reliance on the same means in cases of the more severe form of disease. This mild inflammation is apparently often caused by strong soap, or other acrid or irritating substances rubbed into the eyes at the first cleansing of the child; cold and dampness are also causes. The same agencies *may* sometimes induce the more virulent disease which is the subject of this paper; but it is probably most often due to infection of the eyes, during birth, from vaginal or urethral secretions. This is made probable by the limitation of the time within which the first symptoms appear; for if the severer form of disease were often produced by the action of external irritants, it would show itself at various periods, as a result of the continued carelessness of mothers and nurses, whereas it seldom begins later than ten days after birth, usually much sooner.

The form of purulent conjunctivitis known as ophthalmia neonatorum, or ophthalmia of new-born infants, generally begins from the third to the sixth day after birth, a slight red streak on the skin along the middle of the upper lid being sometimes observed as a premonitory symptom before any discharge from the eyes is noticed. If the lid is drawn open, its lining is seen to be red and velvety, and a slight mucous secretion is found. In a few hours the lids may become enormously swollen and livid, the upper lid sometimes completely overlapping the lower and resting upon the cheek. The conjunctiva lining the lid becomes greatly tumefied and its surface granulated, and inspection of the eye becomes impossible without the aid of an elevator. When by the help of this instrument the eye is seen, the conjunctiva of the eye-ball is found to be in a condition similar to that of the inside of the lids. The secretion from the conjunctiva rapidly assumes a purulent character, and the quantity is very large, a teaspoonful perhaps accumulating in an hour's time. If this condition is not soon changed for the better, the defective nutrition, the pressure of the swollen lids, and maceration in the unhealthy secretion cause haziness of the cornea, and then ulceration and perforation; followed usually by hernia of the iris and perhaps loss of vision.

Two opposite and equally fatal errors of treatment are unhappily prevalent. On the one hand nurses frequently regard babies' sore eyes as a slight matter and neglect to call the attention of the physician to the early symptoms, or rely on the breast-milk as an infallible cure. Then when the increased swelling of the lids makes the use of this means impossible, they are too often ready to apply an alum curd or a poultice "to draw the inflammation," thus greatly increasing the danger of ulceration or sloughing of the cornea. On the other hand the physician, unfamiliar with these cases, and alarmed at the intensity and duration of the symptoms, feels that the latter must be subdued by active treatment, and may employ caustics or stimulants adapted to disease of the same tissues in adults, but not well borne by the infantile subject.

Of all curative means the *most important is constant cleansing of the eyes.* This should be repeated according to the amount of the discharge, every two hours, every hour, or even every half-half hour during the day, and once or twice at least at night, until the diminished secretion and lessened thickness of the lids allow of a less frequent repetition. The lids may be opened with the fingers of both hands by the nurse, whilst another person pours in tepid water from a spoon or sponge. If the lids are greatly swollen this becomes impossible, and a syringe must be used which should be perfectly clean, and have a smooth and not too sharp point. Its nozzle is to be gently passed under the edge of the upper lid, and the contents injected so as thoroughly to wash out the palpebral cavity. This must be done often, as already advised, for it must be borne in mind that the continuous soaking of the cornea in the copious purulent discharge seems to soften its texture and prepare the way for ulceration. Special care should be taken, in cold weather, to make the water so warm that the child may have no shock, and thus to avoid its crying, as the thickened lids are often everted when the child cries. Should this eversion occur, the lids are to be replaced as gently as possible with the fingers. A little simple ointment should be used along the edges of the lids, when the child sleeps, to prevent agglutination and give opportunity for the free escape of the discharges; as also to protect the external skin from excoriation.

If these means are gently used, the child is not much disturbed, and soon falls asleep after them. These measures for securing cleanliness appear to be sufficient for the cure of many even severe cases; but I think it safer, where the symptoms are formidable, to alternate with the injections of water the use of a mild astringent, as, for instance, a solution of five grains of alum in an ounce of water. This should be applied in the same way, and should be warmed, if necessary. A solution of crystals of borax, of the same strength, may be also used. These are the best collyria for these cases; but a solution of sulphate of zinc, a fourth or a half of a grain in an ounce of water, may sometimes be serviceable. Any *strong* astringent solutions, or *any* solutions of nitrate of silver, acetate of lead, or corrosive sublimate; the introduction beneath the lids of mercurial or nitrate of silver ointment; the application of the crayon of nitrate of silver, pure or mitigated with nitrate of potash, or of the crayon of sulphate of copper: all these *should be avoided.* Cases may perhaps do well where these have been employed, especially if great care has at the same time been taken as regards cleanliness of the eyes; but they are dangerous remedies. Moreover, they sometimes evidently cause agonizing pain; and there is great risk that the mother, unable to bear the dreadful sight of her infant's sufferings, may refuse, unless the physician has established the strongest hold upon her confidence, to continue so harsh a treatment, and may place the child probably in less skillful hands, though blaming the doctor if the eyes are lost.

The condition of the cornea must be closely watched, and the lids must be raised for this purpose, by means of an elevator. If unprovided with such an instrument, the physician may form one by bending the end of the handle of a spoon, with which he can draw up the lid; or he may perhaps effect his object by using a brass hair-pin, bending the rounded end in the same way. Any central abscess or ulceration of the cornea would indicate the use of a drop of a solution of sulphate of atropia, two grains to an ounce of water, put into the eye once daily, or oftener, and continued while any cloudiness remains. Should perforation of the cornea take place, hernia of the iris may perhaps be prevented by its use, and if the opening is small and is promptly healed, good vision may be preserved. The physician should not relax his vigilance until the symptoms are much improved, as the cornea sometimes yields unexpectedly, under the effects of the long continuance of the disease, even in its later stages, and after its force is apparently spent.

Every pains should be taken to secure good nutrition for the child. Without exposing it to cold, the air of the room should be renewed. The light should be moderated, so that the child may open its lids when they are not too much swollen, and thus permit the discharge of the secretions. The child will not open its eyes if the room is too light or too dark.

Night Terrors in Children.

An abstract of an article on this subject by Prof. STEINER is given in the Boston *Medical and Surgical Journal,* February, 1875:—

As an illustration of the manner in which the disease manifests itself, the writer reports a case in full. With the exception of previous attacks of scrofulous ophthalmia and of an occasional nasal catarrh, the patient, a young girl five years old, was of healthy constitution, and during the whole time suffered in no way from disturbances of digestion. The paroxysms occurred at irregular intervals, varying from four days to eight weeks; and at the time of writing, the trouble had already lasted two years. On one occasion there were two paroxysms in the same night; but the last one was shorter and less severe. The duration of the paroxysms was from twenty to thirty minutes. After entirely waking up from the attack, the child was always oblivious of what had occurred.

With regard to the nature of the disease, the writer considers it as the expression of a cerebral irritation, making its appearance under the form of a frightful dream, as a rule during the first sleep, in which the objects inspiring fear (dogs, cats, black men, ghosts, etc.) work so vividly upon the children that they rise out of their sleep, cry and scream, without, however, being perfectly awake; so that this condition strikingly resembles a transitory mania with hallucinations of a terror-producing nature.

Is the cause of this transitory irritation of the brain primary and idiopathic, or of reflex origin? According to the writer's experience, which has been large, the children thus affected have never been healthy children, but are generally delicate and anæmic, carrying traces of rachitis or signs of scrofula. They often show, in addition to the attacks, symptoms of great nervous excitability and timidity. For instance, in one case cited, a little girl four years old, was always very much frightened on waking up at night in a dark room; the mother of this patient, a very nervous woman, had also the same dread.

In the writer's own cases the cause of the paroxysms could not be assigned to gastric disturbances, worms, late or immoderate eating, or dentition, as none of these conditions were present. In a large proportion of the children digestion was perfectly normal and the bowels were regular, the appetite on the days of the paroxysms being as good as during the intervals; most of the children were between three and six years of age, so that dentition could be excluded as a cause; and in no single instance were worms present, by which to explain the occurrence of the paroxysms.

The author feels compelled, therefore, to look for the cause of these attacks in an *idiopathic* irritation of the brain, taking root in children who are of unhealthy constitution and who suffer from deficient and abnormal nutrition. These views have been strengthened by the observation that, when gastric disturbances and diarrhœa made their appearance, the paroxysms often disappeared entirely.

It is not denied that, when a predisposition exists, certain exciting causes may exercise a great influence upon the number and frequency of the paroxysms; but we must look upon the disturbances of nutrition in the brain as the principal cause of the trouble. Among these exciting causes are to be especially classed bad mental training, telling of ghost-stories before going to bed, sleeping in a dark room, all of which are calculated to heat and excite the vivid imagination of children who without this are naturally timid and easily excitable.

Night terrors are often a symptom of transitory character and of but little significance, a disturbance disappearing entirely with proper treatment; in some cases, however, especially where the paroxysms occur with great frequency and violence, they must be looked upon as the early forerunner of some serious disease of the brain.

The treatment is hygienic.

Calomel in Croup and Diphtheria.

Dr. J. Baker, in the St. Louis *Medical and Surgical Journal*, January, 1875, recommemends calomel in these diseases. He says:—

To a child two years of age I would give two grains every hour or half hour, until green stools are produced. This may be combined with small doses of ipecac and nitrate of potash; but care must be taken to avoid causing prostration of strength by any medicine. The administration of calomel must not supersede other remedies. An emetic should be given, and, if it produces any detachment and expectoration of pseudo-membrane, should be repeated from time to time. A cloth saturated with hot water, applied to the neck, gives temporary relief. Inhalation of steam is also highly beneficial, but not always practicable. Heated bricks may be placed in pans of boiling water and the atmosphere filled with a dense cloud; the temperature should be between 90° and 110°. I suppose the rationale of the treatment is founded on the idea that moisture and heat will dissolve the fibrinoid exudation or bring back the wandering cells. Rindfleisch says that inflammation is due to, or accompanied with, a wandering of cells in an inflamed organ, and that if we could bring back those wandering cells, the organ would return to the same condition in which it was before the inflammation. He says that moisture and heat will return the wandering cells. As soon as the patient has taken sufficient calomel to produce purgation of green stools, quinine should be administered in full doses.

The following case will illustrate the treatment by calomel:—

November 12, 1874.—I was called to A. S., aged two years—a boy of fair, florid complexion, robust and healthy-looking; has been lately living principally upon animal food, eating beef-steak, liver, etc., at each meal, and always with a voracious appetite; has also been frequently exposed to change of temperature during the day by passing from a hot room on to a porch exposed to a cold north and east wind; the weather, at this time, being damp and chilly. He was suddenly attacked at noon with a chill, coldness and blueness of the face and extremities, followed by fever. About three hours after the attack I found his skin hot and dry, pulse 160, respiration 48, accompanied with a loud, stridulous, croupy noise; respiratory murmur in the lungs quite natural; no redness of fauces or tonsils; body is covered with red patches, somewhat similar to scarlet fever; has already taken an emetic, which caused an expectoration of tough, viscid mucus. Prescribed the following:—

℞ Hydrarg. Chlor. Mit., gt. ij.
Pulv. Ipecac., gr. j.
Potass. Nitr., gr. iij. M.
Ft. Pulv. j. Omni horâ sumend.

During the evening and night the symptoms were very alarming. Child in great distress on account of the difficulty of respiration. An emetic of syrup scillæ comp. was given, which caused expectoration of pseudo-membrane, and calomel powders were given through the night. Towards morning, 13th, the skin became cooler; the redness of the skin has entirely disappeared; the respiration is now only 24; pulse 120; passing green stools; is restless, owing to the irritation in the bowels caused by the calomel, which was soon relieved by a dose of castor oil. Half a grain of quinine was now prescribed to be given every hour, together with beef tea, syrup of senega and carbonate of ammonia.

14*th*.—Is better; breathes with a slight croupy sound; the cry and cough harsh and stridulous. Prescribed warm bath, and medicine to be continued as yesterday.

15*th*.—The croupy sound is now only heard when crying. Prescribed one grain of chloride of ammonium in syrup of sarsaparilla, every 4 hours. From this time the child continued improving, and made a speedy recovery.

Cerebral Complications of Typhoid Fever in Children.

A paper on this subject was read by Dr. H. H. Day and published in the *Medical Press and Circular*, February 17, 1875. He said:—

The frequency of diseases of the nervous system in early life, and the dangers which attend their course when they occur as the sequel of disturbance in the vascular system, give them an importance which cannot be over-estimated, and invite our attention to the grave consequences that might follow a false or imperfect diagnosis. The nervous system derives its strength and vigor from a due supply of healthy blood, and if this is any way changed or disorganized by the fever process, it becomes excited, depressed, or in some way unstrung. Thus it is that independent of the febrile condition, morbid sensations, nervous prostration and those mental phenomena of which we daily see the effect rather than the cause, are of such common occurrence. The author cited two cases of cerebral complication occurring in the course of typhoid, in which the post-mortem appearances gave a perfectly healthy state of the brain and its membranes. He related two other cases in which he believed the inflammatory process played some part in the changes that were observed in the brain—changes independent of the tubercular cachexia, and where no such deposit could be found in any organ of the body. It was impossible to enumerate any symptoms as diagnostic of the degree of cerebral congestion that might be present in any given case. The state of the brain and its membranes bore no approximate relation to the symptoms. The author considered that meningitis uncomplicated with the tubercular cachexia occurred now and then in typhoid fever in rare and exceptional cases. Setting aside the injurious effect which the circulation of poisoned blood at an elevated temperature must have on the nervous centres, there seems no satisfactory reason why the cerebral changes should be restricted to congestion of the vessels, or simple vascularity of the membranes.

The author endorsed the statement of other observers that we cannot, in certain obscure cases, separate a form of typhoid in young children characterized by a distinctly remittent type from cerebral meningitis. If the symptoms are mixed up together in various degrees, the diagnosis between the two affections is often impossible. There were few greater or more perplexing difficulties in the practice of medicine. The author commented on the dangers of hasty induction and rash conclusions, and pointed out the risk of setting down the vomiting and cerebral symptoms to the typhoid state, whilst the brain might have been slowly and imperceptibly going wrong, and was perhaps the primary source of trouble.

The Causes and Nature of Diphtheria.

Dr. J. **Lewis Smith** addressed the Public Health Association of New York on this subject, as reported in the *Sanitarian*, February, 1875. He spoke substantially as follows:—

Since the death of Bretonneau, some twenty-five years ago, it has been abundantly proved that diphtheria is communicable otherwise than by inoculation, for the result of numerous chemical and microscopic investigations has been to nearly demonstrate that the disease is contagious by contact with the patient, through exhalations from the surface and through his breath. And it is thought that the cause of diphtheria has been found in the existence upon the diseased parts in the diphtheritic cases, of small vegetable parasites, which are endowed with life and motion, and which have been designated *bacteria*. These parasites increase in number as the disease increases in intensity, and if diphtheritic inflammation attacks any surface which is covered by the parasites, which cause certain other diseases, such as catarrh, the parasites diminish and disappear, as though deprived of the required nutriment. And on the other hand, when diphtheria disappears, other vegetable forms may succeed. The grayish-white spots which appear upon inflamed surfaces at the beginning of diphtheria, are entirely composed of these bacteria, which have come in contact with the mucous membrane, and have adhered to it, and which, unless prevented, will multiply rapidly, and then by burrowing through the tissues will infect the whole system. The reason why diphtheria primarily and chiefly affects the surfaces of the nose and throat is that the air which contains the germs of the bacteria constantly passes over these surfaces. The important conclusion to be deduced from these facts is that diphtheria is entirely local in its commencement, and is amenable to local measures. This bacterian theory, thus established by microscopical investigations, receives some support in clinical observations from the fact that diphtheria prevails most in localities which are favorable to the development of low forms of animal and vegetable life, such as filthy and crowded apartments, along streets and alleys, and along low grounds where vegetable and animal refuse collects. Additional confirmation of the bacterian theory was found in the fact that diphtheria begins in one spot, and then may be easily treated and cured, and that it is only in a subsequent stage that it infects the whole system, and becomes a generally dangerous disease. But the speaker thought there was another factor in the propagation of diphtheria, which the advocates of the bacterian system had too much overlooked, namely, a predisposing condition of the system. This, he thought, was shown by the fact that sometimes bacteria may be found in the air of localities where diphtheria has not occurred, and in such numbers as to force the belief that they had frequently passed over the fauces in the inspired air. Bacteria are sometimes, too, found in the mouth in perfectly well persons, and sometimes, when breathed, they cause no inflammation in the lungs. These considerations, and other minor ones noticed by the speaker in clinical experience, justified, he thought, the opinion that diphtheria is, in certain cases, a constitutional malady in its circumstances, while in other cases, if not in most, it is primarily local, and only subsequently constitutional. In conclusion the speaker said that diphtheria had scarcely been absent from New York for a single season during the last ten or fifteen years; the primary form predominating during diphtheritic epidemics, and the secondary form in the intervals and during epidemics of scarlet fever and measles, it being a peculiarity of diphtheria that instead of being incompatible with other morbid processes it is likely to engraft itself upon them. He thought the disease in question might fairly be called epidemic in this city. Diphtheritic inflammation attacks by preference such inflamed surfaces as are deprived of their covering of skin, and in this he found an explanation of the frequent complication of scarlatina and measles by diphtheria. For in those eruptive diseases an inflammation is already established upon the fauces which affords a nest in which the bacteria, or diphtheritic virus, might lodge and develop. Then, alluding to the antihygienic conditions which produce diphtheria, the speaker said that when it appeared in New York in 1857 and 1858, after an absence of more than fifty years, some of the first and most severe cases seen by himself occurred in the upper part of the city, along the old water-courses, where, in consequence of street grading, water was stagnant, and impregnated with decaying animal and vegetable matter. In fifteen years' treatment of diphtheria, the speaker said, he had not observed an instance in which it appeared to be communicated from house to house by the clothing, as is sometimes the case with scarlet fever and measles. When it spreads from house to house, or even from room to room in the same house, it is almost always carried by the visits of persons having diphtheritic inflammation. The area of contagiousness of diphtheria is therefore confined to the room in which the patient resides.

The Treatment of Diphtheria.

The extracts here given are from an an article by Dr. JACOBI, in the *American Journal of Obstetrics*, February, 1875:—

Many a case of diphtheria I have not attended, because I believe I have prevented it. I do not speak of those members of a family who if exposed would have fallen sick, but who were protected by isolation of a patient under the same roof. I speak principally of the preventive apparatus in the hands of every family practitioner. I look after the mouth and pharynx of the children in my acquaintance as a regular thing. Eruptions on the head must be removed, and glandular swellings around the neck thereby cured or prevented. The same is done for nasal catarrh and catarrh of the pharynx in the good season, where the prognosis of your treatment is more propitious. Hypertrophied tonsils must be exsected at a time when no diphtheria prevails. For at such times every wound is apt to become diptheritic; and hardly any operation inside of the mouth will heal without turning diphtheritic. For the same reason I postpone any sort of bloody operations during the epidemic of diphtheria, if barely possible. But lately I have seen the wound of an operation for cystocele, performed by one of our most prominent operators, in a house where there was no diphtheria before, to turn diphtheritic and jeopardize the success of the operation.

As a further means of preventing disease, I may at this juncture speak of a remedy. I allude to chlorate of potassa and chlorate of soda. I cannot say that I place much reliance on it as a remedy in diphtheria, and still I give it in almost every case. The chlorate is the remedy eminently fit for most sorts of stomatitis. The large number of cases of stomatitis and pharyngitis during a period of diphtheria, and their usual complication with and initiation of the diphtheritic process justify and require its use. I give it, then, for its effect on the inflamed mouth and pharynx, but not for diphtheria. It acts as a preventive, by returning the mucous membrane to a normal condition. Nor do I administer much more in cases of mild tonsilar diphtheria. As this is a benign affection, it is of greater importance to prevent it from spreading than to remove it from the tonsils, where its communication with the systems of blood and lymph vessels is so very limited. In order to have the full effect I insist upon frequent administration. Doses ought to follow each other in rapid succession. At least every hour, every half-hour, every quarter of an hour sometimes, ought a small dose to be given to keep up a constant contact of the endangered mucous membrane with the remedy. From half a drachm to a drachm may be given during the twenty-four hours. As many families are acquainted with the remedy, and use it without being bidden, see to it that the dose is not too large. The death of Dr. Fountain, of Davenport, Iowa, and many others from overdoses of chlorate of potassa, ought to be heeded.

My views on the treatment of diphtheria have been framed in strict accordance with the opinions I have expressed in regard to its pathology. Although finally a constitutional disease, it is at the beginning nearly always local, or, in other words, infection enters the blood at a limited portal, which is the same in the great majority of cases. From this point of view constitutional diphtheria is analogous to the septicæmia of wounded men and of puerperal women, and the local disinfection which has been accepted as the sheet anchor in the treatment of these affections, must be also the main reliance in that under consideration. We may congratulate ourselves upon this fact, since we do possess some positive knowledge in regard to the disinfection of accessible putrid fluids, while it is safe to say that as yet we have no proof of our ability to disinfect the blood of the living body. We seem indeed to be able to some extent to increase its power of resistance to the action of poisons that have been absorbed into it, but we cannot affirm that our remedies act by destroying the poisons themselves. I shall refer to this again in speaking of quinine.

Local remedies may be divided into three classes. 1st, those which dissolve the false membranes, and thus facilitate their removal. 2d, substances modifying the surface from which the membrane has been removed. 3d, disinfectants, equally capable of arresting chemical changes, and of destroying animalcular life, and applicable, therefore, whichever theory be finally adopted to explain the infectious properties of the diphtheritic exudation.

1st Class.—The rapid solubility of the false membranes is chiefly important when they occupy the larynx, and thus in my paper on croup I have dwelt especially upon this class of agents. Those which still hold the first place are lime-water, glycerine and moist heat. The latter is claimed to be particularly effective. I admit it softens pseudo-membranes like anything else, furthermore it may increase the secretion of acinous glands, and thereby raise and expel membranous deposits. But the fact that it softens healthy tissue as well as morbid exudations appears to facilitate the penetration of the poison into deeper layers. Both of these theoretical views ought to be remembered to guide the practitioner in an individual case. In the majority of cases the application of ice will be found more in accordance with the requirements of the secondary inflammations and enlargements.

The remedies in the 2d class that have been most largely employed are, with the exception of chlorate of potassa, all more or less astringent. It is a noteworthy fact, however, that the pure astringents, alum, tannin, nitrate of silver, formerly employed in diphtheria, and still retained in the treatment of simple catarrhal pharyngitis, have been generally abandoned as remedies for exudative disease. Oertel objects to astringent gargles on the theoretical ground that, instead of facilitating the separation of false membranes and the destruction of micrococci, they tend to arrest the formation of pus, and even favor the wandering infectious elements into the submucous tissues. From what has already been said, it is plain that I do not commit myself to this, or to any other theory of Oertel's, but I am willing to admit that experience has pronounced against the efficacy of the pure astringents, and for my own part I never employ them.

But the substance which to-day is ranked among the most powerful of all astringents, the perchloride of iron, is, on the contrary, a remedy which, when suitably handled, most decidedly merits confidence. The mode of administration of the muriate is of the utmost importance. To insufficient doses, or careless applications, may be traced many of the cases of failure. Thus Steiner, of Prague, is believed to have refuted Schaller's assertions by experiments on four children, to whom was administered hourly a teaspoonful of a mixture containing five to eight drops of the tincture to three ounces of water. Local applications were made three and four times a day of a mixture containing thirty drops to two ounces. The two youngest children, one and three years old, died by extension of the disease to the larynx, the two others recovered.

To be of any efficacy muriate of iron must be given in large doses, frequently repeated. From five to fifteen drops every quarter, half, or every hour, is a dose that alone fairly tests the effective powers of the medicine. Gargles and direct applications to the pharynx may be dispensed with, and their irritating effect avoided, since the throat is sufficiently washed by swallowing.

I pass to the 3d class of local remedies, the disinfectants proper, especially carbolic acid.

It would be quite superfluous in this place to relate or to criticize the vast mass of experiments that have been made to test the disinfecting properties of carbolic acid. Probably nothing is better proved in therapeutics to-day than the fact, that suitable solutions of carbolic acid will arrest putrefaction, kill bacteria and microzyma, and immobilize white blood corpuscles. The great value of carbolic acid as a local disinfectant in diphtheria, as in puerperal septicæmia, cannot be adduced as a proof that the local process depends on the presence of animal germs. These indeed abound in the mouth in the absence of any disease whatever. But carbolic acid exercises a powerful action on the life of all vital elements, and therefore upon that of the rapidly proliferating epithelium which constitutes the diphtheritic exudation. It has been experimentally proved to destroy the power of vaccine lymph. It is therefore probable that carbolic acid may also destroy the unknown poison of diphtheria.

In regard to the antiseptic effect of quinine I think that, if exerted, it can only be by immediate contact with the false membrane, and not after absorption into the blood. In Binz's experiments a solution of pure quinine was used, containing from 1 per cent. to 1 pt. in 1,000 of the alkaloid, and this sufficed to prevent the development of bacteria in putrescible fluids. But even in this smallest proportion a patient with 18 lbs. of blood would require to carry in his circulation 138 grains of quinine to realize the conditions of Binz's experiment. The author himself insists that only 2 grms. = 32 grains a day should be necessary for a man of 120 lbs. weight, but this calculation is based upon experiments on dogs, where injections of quinine have averted septicæmic fever, and not on the experiments with putrid fluids. However, it is important to remember Binz's assertion that, as an antiseptic and antipyretic, the acid sulphate is the worst preparation of quinine that can be used.

In mild cases of tonsilar diphtheria I sometimes try to remove or to destroy the membrane where it is easily accessible. I insist upon this latter clause, because probang and solid stick and mineral acids have, in my opinion, done much more harm than good. Where I cannot reach the diphtheritic deposit and touch it thoroughly, usually with concentrated carbolic acid, I let it alone altogether. The experience is not new that abrasion of the mucous membrane and injury to the epithelia will spread the process in a very short time. The remarks I made in the course of this paper on the vulnerability of the pharyngeal mucous membrane, the tendency to spread on the part of the disease, and the danger of making new wounds, justify that practice. Thus most of my simple cases of tonsilar diphtherite take frequent and small doses of a chlorate, combined with lime-water, or tinct. ferr. mur. ʒss.—ʒij. a day, and generally mixed with a little glycerine, principally for the purpose of keeping the remedy in longer contact with the diseased surface, if not for its own anti-fermentative effect. There is seldom any fever which requires attending to, and rarely but little swelling of the neighboring glands. Where there is I use cold water or ice applications, for reasons which I need not here explain after having spoken of the secondary process in and round the lymphatic glands.

At the other end of the list of diptheritic affections we meet with laryngeal diphtherite, membranous croup. I have nothing to add to my remarks made before you more than six years ago, if it is not that my success in former years, if not with internal treatment, at all events with the ultimum refugium, tracheotomy, has not continued to the same extent. Since 1868 I have saved but a very small percentage of suffocating children, and still I cannot but stand by my former indication for the operation. It must not be omitted when obstruction in the larynx threatens to be the cause of death by suffocation. No complication of disease or epidemic influence ought to be a contra-indication. As in former years, I have used ice externally, an occasional emetic when required, lime inhalations, lactic acid spray.

Every individual case ought to be treated on general principles. Thus fever ought to be reduced by washing, bathing, and remedies by no means exclusively adapted to diphtheria, increasing debility obviated, collapse attended to, severe reflex actions, as vomiting or convulsions, relieved. Whether ether, wine, brandy, champagne, camphor, musk, ammonia, and coffee are to be selected, the individual case teaches better than a lecturer. All of these means are frequently unsuccessful, because they are given too late and in too small doses. Whatever is to be done in a severe form of diphtheria must be done early. If I have reason to be satisfied with my success it is because I have lost no time. More than anything I prize attendance to feeding. Remembering the greediness of lymph-vessels when the chyle-vessels are not supplied, I feed as well as the digestive powers of the patient will permit, always, however, recognizing the fact that the stomach of a feverish patient must be carefully looked after. In most cases of high fever meat diet will neither be relished nor tolerated.

I turn to another class of diphtheria, in which everything depends upon doing the right thing at the right time, that is, the early time. I shall, for the pathology of nasal diphtheria, refer to my former remarks. I repeat only this one, that most cases originate in the pharynx, and reach the nose by ascending. Where an occasional case is first established in the nose it shows itself very soon by a peculiar thin flocculent discharge, sometimes not at all copious, and by very early swelling of glands round the neck. In both of these classes of cases the local treatment has to be commenced at once, and in the large majority of cases the treatment will be successful.

What are the dangers of nasal diphtheria? Rapid absorption, putrefaction, inhalation of foul smells. The indications are clear enough. The surface of the nares *must be cleaned and disinfected.* When you begin early you reach those layers of epithelium which form the original lesion. Then disinfection is successful, and your injection will wash the surface clean. No strong disinfectant is required. Two or four grains of carbolic acid to the ounce of water is sufficient and mild enough not to be abhorred more than lukewarm water would. Injections must be made into each nostril until the current comes free through the other nostril, or through the mouth, every hour, or oftener if necessary. At the same time care must be taken that some of the liquid reaches the fauces.* The fear of otitis I have not. Probably the Eustachian tube is closed by catarrhal or diphtheritic swelling. The mouth ought to be kept open. I have never seen any difficulty arising from my injections A common syringe suffices; but an ear syringe frequently filled is better adapted to the nursing powers of most attendants. A nasal douche, a fountain syringe is much better, the current more uniform. I have now and then seen neglected cases in which an injection would not open the closed-up nares. In such cases I have used probes and pincers to remove the coarsest material, in the same manner as I although averse to meddling with the infected mucous membranes, have had to remove large and thick membranes from the uvula, or palate, when deglutition was interfered with. Every hour, or every half hour, is not too often. The child, frequently with swelled glands, head thrown back or sideways, is suffering more, and sleeping less, from the obstructed nares and fauces, than when the injections are regularly made with certain relief. I have found many children insisting upon their frequent repetition.

Treatment of Syphilis in Children.

Dr. R. W. Taylor, in the course of an article in the *American Journal of Obstetrics*, February, 1875, says:—

Let us now consider, with brevity, the indications for the treatment of infants hereditarily syphilitic affected with osseous lesions. We have already seen, in studying their pathological anatomy, that they are essentially cellular hyperplasia of the forming bone, and of the periosteum, produced by a recent acute syphilitic action. This state differs, in being more advanced, from that of cases in which such bony lesions are absent; and thus, while we have to treat a recent syphilitic condition, we have superadded the lesions already alluded to. A superficial knowledge of these cases might lead to the opinion that children thus affected had lesions of a tertiary character, as they are of bone, and hence that they required the treatment usually employed in that stage; but, as I have, I think, clearly shown, these lesions are of a different character from gummy tumor proliferation, being less advanced, and more closely allied to simple cell proliferation. The condition, as warranted by pathology, can be rightly compared with that of the late adult acquired syphilis in which gummy tumor proliferation has not yet appeared. Now, in this stage, it is well known that the combined or mixed treatment of mercury and iodide of potassium is much more efficacious than is either of those medicines administered alone. And my experience in the treatment of these osseous lesions is that the infant should be treated by the same remedies, and on the same principle. The prescription which I have used, and which I see no reason to modify, is as follows:

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*For that purpose the nostrils must be momentarily compressed.

℞	Hydrarg. bichlor.,	gr. i.	
	Potassii iodidi,	ʒiv.	
	Syrupi aurant.,		
	Aquæ, aa,	℥ij.	M.

We may also use the bin-iodide instead of the bichloride. The dose of this mixture, for a young child about two months old, is five drops, which should be gradually increased, in the manner recorded in the cases. I have pushed this remedy as high as twenty drops in some cases of severe hereditary syphilitic lesions. A matter important to be borne in mind is, that as the taking of medicine has of necessity to extend over a long period of time, we must use such a remedy as is not likely to derange the gastro-intestinal functions, or will induce cachexia, but which, yet, will be sufficiently powerful to control the disease. These indications are, I think, fully met by the prescription above given. Fears may perhaps be entertained by the practitioner, that this long-continued treatment might result injuriously to the health of the child; but such are entirely without foundation. It will be found that under the influence of the mixture alone, even without the simultaneous administration of tonics, the health of the infant will be greatly improved, sometimes in a very striking manner. There need be no apprehensions of salivation, or of any noxious effect of the mercury; for when this combination is used, the iodide of potassium corrects such a tendency, and this constitutes another advantage in its favor. There is good reason for believing that the power of the mercurial, in such a protracted course of treatment, will, after a time, from the system becoming habituated to its action, fail of the desired specific effect. This also occurs in adult syphilis, and is to be successfully met by discontinuing the treatment for a short period, several times during the course. In this interval of rest the system becomes again subject to the mercurial influence, and its action is again made manifest. I have omitted to mention, in my remarks upon treatment, the propriety of ordering these intermissions, though regarding them as essential; for the reason that very frequently they occur in the cases of these children by the negligence and sometimes the indifference of the parents. The practitioner will sometimes undoubtedly encounter great difficulty in enforcing regularity in the treatment, and periods in which the medicine is not given, and perhaps forgotten, will certainly occur, even among intelligent people.

Cases may be met with in which the assimilative processes of the child are imperfectly performed, as well also as instances in which the digestion is slow, and attended with an acid condition of the stomach. Under such circumstances a proper preparatory treatment, the nature of which will be indicated by the peculiarities of the case, is necessary, in order that the medicine shall be well borne, and that benefit shall result from it.

It is of importance also to advert to the necessity of a well-regulated and sufficient diet during the period in which specific medication is followed. In order that good should be produced, and to avoid cachexia, plenty of nourishing food should be given, otherwise the action of the medicine is lowering to the economy, even to the point of being harmful. This remark applies with equal force to the treatment of all forms of hereditary syphilitic lesions, as it does also to the adult. In the treatment of cases among the poorer classes, a want of food will often be found to be a serious obstacle to success. It is unnecessary to go fully into a consideration of the forms of diet required; for it is a well-known fact that the mother's milk, if of a good quality and of sufficient quantity, is the best food obtainable; or, in default of this, that of a wet-nurse;* or, again, a good quality of cow's milk. In addition, much good may be obtained from the administration of cod-liver oil in full doses; preparations of iron and quinine will also be found in many cases beneficial, and in some essential.

I have used the hypodermic injections of corrosive sublimate in hereditary syphilis, and coincidently given the iodide internally, but from a no inconsiderable experience, would advise that this treatment should not be used. These injections induce great subcutaneous infiltration and inflammation, and are very frequently followed by abscesses. I have seen severe systemic reaction follow them, even when used with caution, independent of which objection they are almost inadmissible by reason of the pain they induce, and the repugnance they excite in the minds of the parents. In fact, I think that for infants they are a cruel method of treatment, and that they should scarcely ever be employed. There may be cases in which the course of the osseous lesions is so rapid, that we wish to induce the effect of the remedy immediately, in which event we may have, of necessity, to use them; but I should strongly advise their discontinuance just as soon as the urgent indications have passed away.

Much has been said of the value of mercurial inunctions as a speedy and certain way of inducing the effects of the mineral. They are, in many instances, of infinite value in adult acquired syphilis; but in that of infants are apt to produce severe cutaneous inflammation, and sometimes grave systemic disturbance, such as great enfeeblement, impoverishment of the blood, with cachexia. For these reasons, and also because in these cases their use is to be extended over such a long period, and that it is almost impossible to get the attendants to use them intelligently and regularly, I am not disposed to advise them, notwithstanding their great potency as used in the adult.

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* It would be improper to pass over this point without careful consideration. There is, as is well known, a very great liability that a syphilitic child may convey syphilis to any healthy woman who nurses it at the breast; consequently, under no circumstances would it be right to expose such a person to that serious risk. Though the child might not have, when examined, lesions of the mouth, there is a probability that such might develop; or, again, as its blood possesses contagious properties, this also might be the means of conveying the disease. As to the propriety of suckling it by a syphilitic woman, whose milk may appear to be of good quality and sufficient in quantity, if by such a better nourishment can be given than by its mother, it may have that; but in such cases cow's milk is really the best diet.

As to the method of continuing the use of the mixed treatment, I should advise the reader to follow the history of several of the cases, as such a perusal will give a more practical idea than any didactic statement can possibly convey. In summer, gastro-intestinal disorders may supervene, in which case the hydrargyrum cum creta, with astringents, can be given, and perhaps the iodide continued. During the continuance of warm weather, it is well to anticipate these frequently-occurring troubles, and prudent to send the little patient into the country. Another point is, that if the mother is able, she should continue to give the child the breast, as in that case it is less liable to bowel difficulties. I say nothing of medication of the child through the mother, as it is totally ineffectual.

Locally, in the case of the ulcerations, I think that nothing is as beneficial as the application of iodoform into their cavities, with a covering to the parts of balsam of Peru ointment.

When separation of the epiphyses occurs, the indications are the same as in fracture, namely, immobility of the parts by means of an accurately fitting splint or a bandage. Adhesive plaster, plaster-of-Paris, and the starch bandage, may severally be made use of. The adhesive plaster, if properly applied, is, perhaps, the best, as it is readily removed, easily re-applied and adjusted as the swelling diminishes. It is very necessary not only to keep the parts in juxtaposition, but also to maintain pressure, which is as beneficial in these cases as it is in synovitis. When the latter complication arises, rest should be insisted upon, and cooling lotions applied, in addition to such medicinal treatment as the disease requires. Surgical interference may be demanded when the epiphysis is wholly separated, which then acts as a foreign body. In such an instance the removal of the fragment, the application of carbolized lint in the cavity, and the maintenance of a fixed position, are the main indications.

It may happen, in case of enlargement of the phalanges, that the medicine has no effect, and that the swelling persists. In such an event the surgeon might, perhaps, think of resorting to exsection, a proceeding which, in my opinion, should be delayed as long as possible. Indeed, I think that the mercurial preparation should be persevered with for eight or ten months, while at the same time pressure is made use of. Even in case of failure, there is no good reason for removal of the bone if it be simply in a swollen condition. Should, however, necrotic changes supervene, together with sinuses, and the usual chronic inflammatory condition, perhaps an operation would be imperative; but I should strongly counsel delay, and a perseverance with treatment.

In cases of enlargement of the phalanges, or of either of the ends of the shaft, when ulceration does not complicate the case, benefit can be obtained by slight continuous pressure, combined with the constant application of a mercurial preparation, either in the shape of the ointment, which should be half of the officinal strength, or of a mercurial plaster, either of the simple variety, or the Emplastrum de Vigo. When such an application is made, care should be exercised that inflammation of the skin is not produced, as ulceration of a chronic character might result. At any rate, the plaster or ointment, kept in close position by a bandage, should be frequently changed, as it becomes loose in a few days.

The nodes on the scalp require, in the uncomplicated condition, little or no local treatment, beyond daily frictions with mercurial ointment. When they degenerate into abscess, and consequently induce a phlegmonous state of the scalp, a free crucial incision should be made, the detritus carefully removed, and the whole thoroughly mopped with carbolic acid rendered fluid by a few drops of water; the cavity then to be stuffed with charpie, and cold water dressing applied to the scalp. The next day this should be removed, and if the parts present a sloughy appearance, the application of the carbolic acid should be repeated, taking care to merely moisten the surface, and not to allow any of the acid to flow from the wound. Or the cavity can be dusted with iodoform, and then stuffed with lint, and a cooling lotion applied to the spot and to the scalp for some distance beyond it, as long as any inflammatory symptoms remain. This latter application is of much importance, as such phlegmonous inflammations of the scalp very often give rise to adenitis of the post-cervical ganglia, which in syphilitic subjects are particularly liable to suppuration.

Deformities in Children.

In the Boston *Medical and Surgical Journal,* April 22, 1875, Dr. Charles E. Buckingham writes:—

More especially with the child of a first pregnancy, it will be a little remarkable if you are not asked, even before the child is separated from the mother, "Is it perfect? Are there any marks upon it?" These questions I always answer, "I have not had time to examine yet."

The hare-lip is an abnormity which sometimes requires very early attention. The time for interference is of course dependent upon the amount of deformity. The existence of supernumerary fingers or toes may render it necessary for you to know and speak early. Strabismus to a certain extent is not very uncommon; but very often indeed what is seen is a general weakness of different muscles, rather than a positive shortness of any one muscle, and it usually rectifies itself if let alone. But all these affections, as well as the different forms of club foot, which can generally be treated early with success, and without operation, are matters to be spoken of elsewhere.

I cannot avoid speaking, however, of one matter which more than half of the young mothers are troubled about. That is tongue-tie; the short frænum of the tongue. It is very frequently spoken of by nurses, often asked about by mothers, and yet it very seldom has existed to a degree requiring interference in patients who have fallen under my observation. Want of patience with a child who has been unseasonably and improperly fed, and who consequently finds it easier to swallow from a spoon than to nurse from a nipple—this is the history of most cases of supposed tongue-tie. If the child, when you put your little finger in its mouth, can draw upon it, there is no tongue-tie. If the child, when you are examining it, after feeding gapes and puts its tongue upon the lip, or draws it back so that you can see the frænum, there is no tongue-tie. If there be a tongue-tie you will find, when you open the little fellow's mouth, that the organ is not only bound down to the jaw, but also that it has the appearance of being stitched through vertically, as it were, so as to look as if there were a bisection of it.

SURGERY.

I. GENERAL SURGERY.

On Surgical Thermometry.

The following conclusions are extracted in the London *Medical Record*, January 6, from a recent work by Rochard:—

Traumatic Lesions.—Extensive wounds from surgical operations are immediately followed by a notable elevation of temperature (Simon, E. Montgomery, Dermarquay). Galliot observed an elevation of the thermometer to 101° immediately after an accident, followed by subsidence in three days to the normal temperature. In complicated fractures the defervescence is slower; profound concussion of the nervous system produces a similar elevation; serious injuries from shells and fire-arms produced on the contrary depression of temperature varying from 1° to 5°; it is most marked in the subjects of alcoholism. According to Demarquay, whose observations were numerous during the siege of Paris, depression to 95° was always followed by death; this depression seemed to be associated with lesion of the peritoneum. Similar phenomena accompany severe and extensive fevers. (Kuss, Demarquay, Billroth.)

Secondary Accidents of Wounds.—These are always accompanied by an elevation of temperature. Traumatic fever (Billroth, *loc. cit.*) occurs generally in the first seventy-four hours, is accompanied by rapid rise of temperature, of which the maximum is usually found between the third and sixth day. It very rarely rises above 104°, its *acme* is short; and towards the evening, defervescence is sometimes rapid, sometimes slow, and then accompanied by evening elevations. The prolongation of the *acme* or the return of marked exacerbations are indications of internal inflammation or of the approach of pyæmia.

Erysipelas has the most characteristic graphic trace; brusque ascensions, uniform and prolonged *acme*, sudden defervescence. The thermometer, after standing at 104° for three or four days, suddenly falls to 98°. This series of events occurs with each outbreak, and this typical course would alone suffice to distinguish erysipelas from purulent infection. In the latter, although the rise is as rapid, and the *acme* reached often higher by two or three degrees, it is extremely short, and the defervescence is rapid; then follows a new access, which goes through the same phases and is followed by several others. The thermographic trace shows alternately very high and very low levels; finally, in the forty-eight hours preceding death, the remissions cease and the thermometer gradually rises to 107°. All these characters suffice to distinguish pyæmia from suppurative and hectic fever, in which there are also exacerbations, but daily, regular, and of minor degree.

The thermometer attains its maximum in tetanus. The remarkable symptom in this disease is the occurrence of a sudden elevation (Billroth, Leyden) in a very few minutes, to excessive temperature, 109° and 111°. This is especially seen in the last period of tetanus, when the diaphragm is paralyzed and asphyxia commences.

The temperature often rises several tenths of a degree after death. There is no anatomical lesion to explain this fact. [The author does not seem to be aware of the interesting pathological conditions discovered by Lockhart Clarke in the spinal cord, which may well have a direct relation to the elevation of temperature.] In wounds of the spinal cord, almost as considerable an elevation has been observed by Brodie in 1837, Billroth in 1862, Weber (of London) in 1868, Quincke and Fischer in 1869; they have all seen the thermometer rise as high as 107°, and Weber to 111°.

Alterations in the Blood.—All diseases which slowly obstruct circulation, or hæmatosis, are accompanied by a slow depression of temperature, which seldom exceeds from one to two degrees, and is observed at all hours of the day. The same phenomenon is produced in blood-poisoning when it diminishes oxydation, especially in alcoholism and uræmia; in the latter affection the depression is constant and pathognomonic. The thermometer falls sometimes to 86°, and in that case death is at hand.

Local Temperature.—Arterial aneurisms produce appreciable rise of temperature in the affected limb, most pronounced at a distance from the seat of the aneurism; in a case of popliteal aneurism, the elevation on the diseased side in the bend of the knee was only 1.4°, whilst between the toes it was 6°. Demarquay, Monneret and Henry of Nantes have made the same observation.

The "Least Sacrifice of Parts" in Surgery.

At a meeting of the Medical Society of London, reported in the *British Medical Journal*, February 6, 1875, Mr. BRYANT read a paper on the least sacrifice of parts, which, he maintained, ought to be a leading principle of surgical practice. He explained the principle as one that forbade the surgeon to sacrifice more of the body than the absolute necessities of the case demanded; that called upon him to remove the disease, but no more; that enabled him in accidental surgery to make a flap for an amputation wherever he could, and in some cases to make no flap at all, but to leave the case to nature to repair; and, in pathological surgery, to cut through tissues infiltrated with inflammatory deposits rather than go above a joint or take away more of a limb than the necessities of the case demanded. He condensed the subject into three main propositions, each of which he illustrated by cases. The first proposition was: "That, in case of division or accident, no more of the body is to be taken away than the necessities of the case demand." He illustrated this chiefly from the surgery of the foot. At first sight, the proposition might appear to be a truism; but he asked if it were not true that, in cases of disease of the metatarsal bones or joints, surgeons were too apt to regard the individual case as a good one for Chopart's operation, or Pirogoff's or Syme's, and to forget that a good recovery of the foot might ensue on removal of the diseased bone or bones without any amputation at all. In support of this, he quoted Mr. Lister (Holmes's *System of Surgery*, second edition, vol. v.), who expressed his opinion, "that Syme's amputation is calculated to supersede entirely that of Chopart's, besides taking the place of amputation of the leg in the majority of cases formerly supposed to demand it." He entirely dissented from these views; he believed that, for local disease alone, no form of amputation of the foot should be entertained until less severe measures had been employed and failed; that, when amputation of the foot was called for, the minimum amount of foot should be taken away; that, when a Chopart's operation would suffice, a Pirogoff's should not be thought of; that, when a

Pirogoff's was applicable, a Syme's should not be entertained; and that an amputation of the whole foot was never to be undertaken when the disease could be removed by less severe measures. The remarks made were as applicable to other parts as to the foot. Fingers and thumbs were often removed in cases of injury that, if left to nature, might often be saved. Joints were excised that might be saved by free incisions, or by the removal of necrosed bone; and amputations were performed above a joint or high up a limb, in order that good flaps might be made. He illustrated all these points by cases, quoting seven cases of disease of the different tarsal bones, cured by the removal of the diseased bone; and three of extensive disease treated respectively by Chopart's and Syme's amputations, or by amputation of the leg. In disease of the bones of the foot, he had met with a case in which the resection of a tarsal bone was called for; for bone that was not dead was reparable, and to take this away was too often to take away that which, if left, would make good the parts that had died.

The author then proceeded to illustrate the value of the proposition by the treatment of cases of diseased joint, and dwelt for some time upon the value of free incisions into suppurating joints. He referred to thirteen cases successfully treated by this method; and stated his belief that a free cut into a disorganized articulation was rarely followed by any other than a good result; that, when the suppurative process was due to synovial disease, a recovery without further surgical interference might be looked for; when it was due to local necrosis, the incision helped nature towards recovery by expediting exfoliation and the subsequent removal of the bone by either natural processes or some surgical proceeding. In more severe cases, the incisions gave relief, and in no way added to the mischief. The treatment of disease of the joints due to local necrosis was then considered, and a series of ten cases was read, including examples of disease of the shoulder, elbow, hip, knee, and ankle joints, in which recovery followed the removal of dead bone from the articulations. The second proposition was: "That, to carry out this principle, the surgeon may, in pathological amputations, fearlessly divide tissues infiltrated with organized inflammatory products, and even cut through the walls of suppurating cavities or through diseased joints, more particularly to save amputating above a joint." Mr. Bryant illustrated this proposition by the particulars of ten cases, in all of which recovery took place. The third proposition was: "That, in accidental surgery, parts irreparably injured are alone to be removed, and no healthy tissues are to be sacrificed in order to perform a recognized, and probably a named operation; that, to these ends, the surgeon ought to utilize even doubtfully useful integument, or even leave a stump to granulate, when, by so doing, some portion of the shaft of the bone can be left, a joint saved, or amputation above a joint avoided." In the surgery of the hand, this practice was strongly advised, more particularly the injuries of the thumb. Amputation of a thumb, unless smashed irreparably, the author condemned; and, under all circumstances, the irreparably injured parts ought alone to be taken away, and doubtfully viable skin left. Cases were quoted to illustrate the proposition; ten of the toes; one of the foot; a Chopart's amputation, in which a long anterior flap was made; one of crushed arm, which was left to nature to granulate, and a good stump left; two of crushed legs, in which a rapid recovery followed amputation at the knee joint; and one of ruptured popliteal artery, treated in the same way with success. The author concluded by stating that he could still further illustrate the value of the principle "of the least sacrifice of parts," pointing out how Sir W. Fergusson had always urged the removal of tumors of the jaw from within, and Sir J. Paget, tumors of bone generally by enucleation.

The Antiseptic Dressing of Wounds.

In a review of this method in the London *Medical Record*, December 23, 1874, the writer says:—

The problem of this treatment of wounds presents four factors, whose combinations are very complex:—

1. The known or supposed ferments:
2. The media in which these ferments are developed:
3. The state of the organism and of the traumatism:
4. The antiseptics intended to prevent and combat local and general effects of ferments.

1. There have been classed, according to Cagnard de Latour and Turpin, a large number of ferments; but there are still among the unknown those supposed to be the cause of infectious and contagious maladies, such as erysipelas, hospital fever, carbuncle, etc. The origin, organization, modes of propagation, and multiplication of the different species, their varieties of action or of nocuity, are equally open questions. Septicæmic blood, prepared by M. Davaine, killed some of the animals experimented with even in infinitesimal doses; and if atmospheric ferments are so redoubtably the source of traumatic complications, it is none the less true that the most dangerous wounds are habitually without accident when the surrounding air is not vitiated. May we not then conclude that there is little danger of panspermic changes in the normal conditions of life? This danger arises with the courses favorable to the multiplication of fermentary corpuscles.

2. The consideration of favorable or specific media occupies an important place in the problems to be solved. Heat and humidity, decomposition of animal and vegetable matters, large collections of living beings (towns, hospitals, camps, etc.), confined air, all play an important part in the production and propagation of epidemics.

3. Men offer to these ferments resistance that varies greatly, with race, sex, rank, idiosyncrasy, age, constitution, state of health, etc. Certain individuals are particularly accessible to morbid causes. The least scratch will determine with one an abscess, with another gangrene and the most deplorable accidents; whilst with others the deepest and largest wounds are very readily healed. Wounds, according to their nature, their causes, and their irregularities, are not exposed to the same chances of infection. Thus the conditions to be analyzed in order to draw certain conclusions and determine error are very complicated.

4. The means of preventing and combating the effects of ferments on wounds form another kind of study. Filtration of the air, the immense panspermic recipient, appears the prophylactic process that is most effectual; whilst the curative treatment comprehends the destruction of ferments by antiseptic substances of external or internal application. If the ferments have already penetrated the organism and render it necessary that we should pursue them there, how are we to destroy them without alteration to the elements with which they are bound up? We may cite, as examples, the success of vaccine against variola, of quinine against certain fevers, of mercury against syphilis; but nothing goes to prove that these maladies are due to ferments, and their generalization as parasitary ferments, although in itself rational, still requires scientific demonstration.

A dressing for trephine-wounds that has been successfully used by Dr. Sarazin, surgeon-major to the Military Hospital at Bourges, is a solution of ten per cent. of tar in water made alkaline with soda without causticity. This liquid cleanses and rapidly disinfects the wound, which may be covered with a layer of tar and wadding, in two courses, to a finger's thickness. This dressing has been used in a case of amputation of the thigh, two of the leg, three of the breast, a resection of the elbow, one of the knee, and in many cases of wounds by fire-arms, etc. The many cases of resection of the knee successfully accomplished by antiseptic aid, indeed, may be considered scientific evidence of the value of this comparatively recently introduced system of medicine.

The Treatment of Erysipelas.

Dr. F. L. SATTERLEE, in an article in the New York *Medical Journal*, December, 1875, says:—

Having reviewed rapidly the various methods resorted to in the treatment of erysipelas, including those at present in high favor, we are ready to give our own method, which was mentioned at the beginning of this paper, and to which I have given the name of the quinine-and-opium treatment; and I hope to be able to show you its advantages both as to its simplicity, safety and rapidity of action. It consists in the administration of one, two, or three full doses of the sulphate of quinine, combined with enough tincture or elixir of opium to moderate the disagreeable effects of the quinine upon the head, and to assist sleep. If called at the beginning of an attack of erysipelas, I administer, to an adult, twenty-five to thirty grains of the sulphate of quinine, dissolved in one and a half ounce of water, which is readily accomplished by the addition of a little dilute sulphuric acid; a few drops will completely dissolve the powder and a clear solution will be formed: to this add fifteen minims of McMunn's elixir of opium, and we have a draught which, although very bitter to the taste, is not so disagreeable to take as a small powder of quinine; in fact I have on one occasion administered sixty grains of quinine, dissolved in three ounces of water, in one dose, to a patient with a very obstinate and long-standing intermittent fever, and the remark he made to me some time afterward was that he "was so glad that I had given him that draught *instead of quinine*, as he had taken a great many quinine-powders for over two years, and they were very unpleasant to take, without doing him much good." Having ordered a draught, as just stated, containing twenty-five or thirty grains of the sulphate of quinine, I direct the erysipelas patient to take it all at once on retiring for the night. It will usually be retained by the stomach without difficulty; if, however, the stomach is irritable, I prescribe a mustard-plaster about the size of the hand, to be applied, ten or fifteen minutes before taking the dose, under the left breast; this procedure I have found unfailing in quieting the stomach so that the draught is retained. In one case, where the fauces were greatly inflamed and deglutition very painful, I had an equally good effect by administering the dose by the rectum. After this draught the patient usually has a very good night, sleeping well and perspiring freely; and, on examination at the end of twenty-four hours, we find the temperature and pulse have fallen greatly, the general symptoms have either disappeared or been very much improved. In some cases we have some deafness and noise in the head from the quinine, but in the majority of instances the opium seems to entirely remove this after-effect of the drug. The eruption markedly diminishes, and I have seen many cases where a single draught has completely aborted the disease. In all cases I direct the patient to observe simple hygienic rules, use a stimulating diet, with free draughts of lemonade where there is biliousness, a simple cathartic in cases of constipation, and no external application whatever.

This is my treatment in the incipiency of a mild attack of erysipelas. But in any and all of the varieties and severer forms of the disease, or where I do not see the case until it has advanced several days, I commence treatment in the same manner, but, at the end of twenty-four hours, or on the second evening of my attendance, I administer a second quinine draught, and, if necessary, a third at the end of forty-eight hours. In my experience this has been entirely successful in the most severe types of the disease, the eruption and general symptoms passing away with rapidity. The patient makes an excellent recovery under this mode of treatment, the appetite comes speedily, and there is very little debility experienced. Twenty-four or at most forty-eight hours is all that is required to abort the disease by this treatment. Having used it for three years in a large number of cases, I have never found any disagreeable after-effects; on the contrary, the general health of the patient is improved, and this is the experience of all those, whom I have known, who have employed this plan.

Raw-Cotton Dressing for Wounds.

In the New York *Medical Journal*, March, 1875, the following extract is given from a recent lecture at the Bellevue Hospital Medical College, on the Principles of Surgery, by Prof. W. H. VAN BUREN:—

I cannot leave this subject without calling your attention to a novel mode of dressing wounds with raw cotton, which has lately attracted much attention in Paris. I have already spoken of raw cotton as an American remedy in burns, but great advantages are now claimed for it as an application for recent wounds; it is said to protect them from the contact of the poisonous particles which are assumed as everywhere floating in the air as dust. These poisonous particles, in the present state of our knowledge, are supposed to be bacteria, or the spores of some analogous organism, capable of getting into the blood through open wounds, and acting as a ferment, or, at least, of being carriers of poison. So-called zymotic diseases, such as pyæmia and erysipelas, which interfere so often with the successful treatment of open wounds, especially in hospitals, are generally believed to owe their origin to this cause. Now, Pasteur, who discovered that putrefactive fermentation was due to the presence and growth of vegetable organisms, and Tyndall, who has experimented largely upon atmospheric dust, had both proved that raw cotton is the most effective filter by which the air can be deprived of these floating particles; that, when forced to pass through its meshes, air is rendered pure, as far as these poisonous particles are concerned. During the winter of 1870–71, when the hospitals of Paris were crowded with wounded soldiers and Communists, accumulated through the coincidence of the Prussian siege, the civil war, and famine, and when pyæmia was so universally prevalent that an amputation was almost of necessity fatal, this assertion of Pasteur concerning the filtering power of raw cotton occurred to one of the surgeons of the St. Louis Hospital, Alphonse Guérin, as a possible source of advantage. He forthwith tried it as a dressing on several patients, binding it upon their wounds in liberal quantity, and keeping it accurately applied by firm compression with bandages. To his surprise and delight, he found that the chill, by which the advent of the fatal complication is always heralded, did not occur, and his patients went on to get well. Encouraged by this experiment, he repeated it with equal success;

those dressed with raw cotton were found to do well, while others in the same ward died of the prevailing endemic. The result was so remarkable, that surgeons from other hospitals came to St. Louis to witness the rare sight of patients recovering after amputation, and themselves adopted this mode of dressing wounds. Shortly, the use of raw cotton was systematized as a surgical dressing, and it has since been very generally employed. Desiring to learn the estimation in which it is now held, I sought information from my colleague, Dr. L. A. Stimson, who is at present in Paris, and I find that, although the prevalence of pyæmia has of course very much diminished in the hospitals, the raw-cotton dressing is still regarded favorably. It is claimed by Dr. Guérin, in recent communications to the French Academy (March 23d and May 18th, 1874), that, in accordance with Pasteur's assertion, when properly applied, it effectually excludes a recent wound from contact with all poisonous germs—*without entirely excluding air.* He has found pus, in contact with a wound which had not been disturbed for thirty days, perfectly fresh in appearance, and free from odor; it was changed in its anatomical and chemical characteristics, contained no traces of pus-cells, was converted, in short, into an oily emulsion containing large crystals of the fatty acids—showing that oxygen had not been excluded—but it presented no evidences whatever of putrefaction. In his earlier experience he once removed the dressing from two cases, which were doing perfectly well, at the end of a week, and within three days both patients had chills, followed by fatal pyæmia. This led him to adopt the plan of applying the cotton dressing with great care and precision at first, so that its renewal should not be necessitated until the establishment of a barrier of granulations, or the final healing of a wound. If the discharges saturated the cotton and made their appearance upon the surface of the dressing, additional layers of cotton-wadding were applied over the old dressing without regarding bulk, and, over these, bandages put on with the greatest possible amount of compressing force; for it is found that where the cotton is applied in sufficient quantity, and of good quality, its elasticity renders the compression equable, and that, so far from being a source of danger, the elastic compression is advantageous. After a circular amputation of the thigh, an assistant steadies the stump, while another pulls apart the edges of the divided integument, and the surgeon proceeds to fill the cavity thus presented to him with small masses of cotton torn from the sheet of wadding, small at first and applied accurately to every part of the cut surface, then larger masses as it becomes filled, and then layers of the wadding are applied over and around the stump and upon the hip and pelvis, and over all a spica-bandage put on, with great care and as much compressing force as possible. No air must come in contact with the wound that has not filtered through the thick mass of cotton. Moreover, this cotton must be of good quality, fresh from the manufactory, and it must not have been exposed to the air of the hospital. Under favorable circumstances he has found it the best plan to leave this dressing in place about two weeks, when the granulating surfaces are usually found ready for approximation for final union, but he never renews a dressing in the foul air of a ward. Tarlatan and collodion straps are preferred to strips of plaster, as more transparent. He *has* obtained *primary* union. Guérin believes, with Lister and Tyndall, that while gases can be introduced into the blood through the lungs, poisonous particles like germs become entangled in the air-passages, and do not as a rule reach the blood by this route. The experiments and deductions bearing on this point are full of interest to the student of surgery, but the point is not as yet definitely settled; for Tyndall himself, in detailing the advantages of using a "cotton-wool respirator," remarks that "it is exceedingly probable that the germs which lodge in the air-passages, or find their way into the stomach with its absorbent system, are those which sow in the body epidemic disease." If this be so, then disease can be warded off by carefully-prepared filters of cotton-wool, (*vide* "Dust and Disease," in "Fragments of Science," etc., London, 1871, p. 321, *et seq.*)

In conclusion, it is claimed for this new method of dressing wounds that, besides protection from poisonous germs, it prevents inflammation, by its uniform elastic compression, the equability of temperature, the protection from external injury, and partial immobility which it confers; that it promotes the development and growth of granulations, saves the pain and trouble of frequent dressings, and facilitates the transportation of wounded men. It thus favors the scattering of the wounded after a battle, and for this reason, as well as the simplicity of the materials required, and the ease with which they can be applied, it commends itself to the military surgeon. In civil practice it promises to be useful, principally in the large hospitals of great cities, where pyæmia and erysipelas are always liable to become endemic, in preventing poisoning of open wounds by these diseases, and also by thus enabling surgeons to save limbs which might otherwise require amputation.

A Method of Curing some of the Contractions resulting from Burns and Scalds.

Mr. F. I. B. Quinlan read a paper with the above title given in the *Irish Hospital Gazette*, March 1, 1875, in which, after alluding to the difficulties which attended the treatment of these cases, he detailed a mode of operating for the removal of the cicatricial web, such as is commonly seen between the arm and side, after severe burns of the trunk, on what he termed the "earring principle." Arguing from the mode in which the lobes of the ears are pierced by jewellers for rings, he thought that if he pierced the cicatrix of a burn with a trocar and cannula, and subsequently introduced a smooth glass rod, or other similar substance, which was removed and cleansed at daily intervals, he could thus form a "tunnel" in the cicatrix which would "skin over;" and that when this was effected he could then, by inserting the point of a bistoury into the tunnel, divide the web, leaving a strip of cuticle at one end of the incision, which he hoped—conjoined, of course, with careful dressing—would prevent a recurrence of the contracting process. In several of the cases in which he tried this plan, he failed in all but two. He forgot the difference between operating on healthy tissue, such as the ear, and upon a cicatrix. The tunnel would never skin over satisfactorily. Therefore, in the case which he now brought before the Society—that of a girl whose right arm was attached to the side from the internal condyle to the axilla—after having been obliged to give up the above plan in consequence of an attack of erysipelas, he tried the following procedure with the most satisfactory results: Having formed a tunnel, as previously described, at the upper angle of the web, he introduced an elastic cord through it, and tied it below in the usual manner. The ligature cut through the cicatrix in three days; the small strip of tissue then remaining being divided by an ecraseur, without the loss of any blood. Pieces of lint spread with calamine ointment were now placed respectively on the side, the arm, and in the axilla. A stout India-rubber elastic band, such as is used for keeping books, etc., together, was then passed under the arm, into the axilla and over the shoulder, thus exercising pressure on the upper angle of the incision in the axilla. Everything now progressed favorably; the cut surfaces, with the exception of that portion in the axilla pressed on by the band, healed in a short time. A lighter elastic band was now substituted for that previously employed, and in a few days the axilliary ulcer also was healed. It is now twelve months since this operation was performed, and no tendency to recurring contraction has shown itself. In conclusion, Mr. Quinlan recommended this method to the favorable notice of surgeons, and characterized it as being safe, expeditious, and simple.

The Chairman said that any suggestion that gave assistance in dealing with these cases, which might be regarded as a sort of opprobrium of surgery, being very difficult to manage and often most unsatisfactory in their results, was valuable.

Mr. Stapleton remarked that years ago a somewhat similar procedure to that proposed by Dr. Quinlan used to be adopted in these cases; the cicatrix being perforated with a lead wire, which was left in until the part healed round it, and then the wire was gradually twisted until it had cut through. He had used this method in several cases, but they did not turn out satisfactorily. It was hard to say how operations in these cases would ultimately turn out. The only effectual proceeding, in his opinion, was the removal of the entire cicatrix and subsequent performance of a plastic operation.

Mr. Wheeler thought that the removal of the cicatrix by the knife, adopting Esmarch's apparatus where practicable, caused much less pain to the patient, and was preferable to the plan proposed by Dr. Quinlan.

Mr. H. G. Croly lamented the absence of ordinary care that gave rise primarily to these contractions. He detailed some cases he had operated upon, and said that in one, at present under treatment, in which the little girl's arm was bound up at a right angle to the body, he had used Esmarch's bandage, and dissected away the entire cicatrix and fixed the limb in a splint. He had also determined to try skin-grafting in this instance, and he trusted that by putting new tissue where the silvery cicatrix had existed, the cure of the case would be facilitated.

The Arsenical Treatment of Cancer.

In the *American Practitioner*, December, 1874, Dr. D. Lewis remarks :—

The treatment of cancer by caustics is of almost equal value with that by excision, and is so recognized by many recent authorities. The agents which are in most common use are the strong sulphuric acid, nitric acid, caustic potash, terchloride of antimony, bromine, chloride of zinc, and arsenious acid. The principal objection to most of these is the excessive pain attending their application. The least painful of the above-named is the arsenious acid, used according to the method practiced by Dr. Marsden, of the London Cancer Hospital, who after an experience of nearly twenty years, and covering upward of six thousand cases of cancer, pronounces it superior to every other caustic. He recommends it in every form of cancer, except the cystic or colloid varieties—provided that the disease does not exceed four inches square in size—when removal by the knife appears to be the only remedy. Arsenic may be used in this way for cancers in every situation, except the interior of the mouth or nose, localities where the nature of the remedy makes it dangerous. The formula used at the cancer hospital is the following :—

℞.	Arsenious acid,	ʒij.
	Mucilage of gum acacia,	ʒj.

Mix into a paste too thick to run. This is to spread over the entire surface of the cancer, provided this does not exceed one square inch in size; a bit of dry lint is then placed over the sore in order to absorb any excess of paste. In the course of an hour the lint becomes dry and hard, and adheres firmly to the parts. In the course of twenty-four hours some inflammatory action is visible in the tissues immediately adjacent to the cancer. There is often also some pain, but this is not usually severe, and lasts but for a day or two. After the lapse of two or three days, according to cirucumstances, bread and water poultices, changed every few hours, are to be constantly applied over the sore. A distinct line of demarkation is usually to be seen by this time, and the slough gradually separates and comes away, leaving a healthy cup-like depression, varying in depth and size according to the mass removed. Granulation proceeds rapidly, and the case is then treated as a simple ulcer. The slough separates at periods varying from six to thirty days, according to its size. The disease usually comes away entire with the slough; but where this is not the case the paste is to be applied to the remaining portion, as in the first instance, every second or third day, till the desired effect is produced. The arsenic really appears to have a positive power of election, so that if applied to sound tissue along with the cancerous the diseased part alone is destroyed. Marsden's large experience seems to prove this conclusively. The arsenical paste is equally applicable to cancer, whether on the lip, face, head, arm, hand, abdomen, breast, penis, testicle, labium, scrotum, or foot; but must, as I have stated, be carefully watched, and never applied where the disease involves more than four square inches of tissue. Many medullary and scirrhous cancers can be removed in this way, but it is especially applicable to the epithelial variety. Marsden believes that nine out of ten cases of this form may be perfectly cured if taken in time.

The author closes with the following summary of treatment:—

1. That arsenical mucilage is to be preferred to any other caustic, as giving less pain during its application.

2. In cases to which it is adapted it is superior to excision, (*a*) because of the greater readiness of patients to submit to it, (*b*) the less amount of shock, and (*c*) the avoidance of anæsthetics.

3. It acts in a remarkable degree on the cancer, while the surrounding healthy tissues are comparatively unaffected by it.

4. When properly used it is free from danger, and the fear therefore of poisoning is groundless.

5. It is most efficient in the earlier stages of cancer, the same being true of all other modes of treating this affection.

6. It being of such easy application, cancer patients may be treated promptly at home and by their usual medical attendant.

7. Finally, a general acceptance of this plan of treatment would so far promote the early removal of cancer that many lives, which would otherwise be lost in consequence of the dread of a surgical operation, would thereby be saved.

(*a*) SURGERY OF THE VASCULAR SYSTEM.

Symptoms of Abdominal Aortic Aneurism.

At a meeting of the Pathological Society of London, reported in the *Medical Times and Gazette*, January 9, 1875, Dr. DICKINSON exhibited a specimen of "Obscure Abdominal Tumor," which had given rise to very interesting symptoms during life. A gentleman of seventy-six was attacked in January, 1872, with swelling and redness of the left testicle, followed by pain in the course of the left ureter. The latter symptom continued for some time "dull and heavy," and the patient also described it as connected with the "lower bowel of the left side." The pain increased until it became agonizing; for several months it continued so: thereupon constipation and vomiting supervened, the pain being intensified by action of the bowels. Thus the first eight months were passed. Dr. Dickinson now saw the patient for the first time, and found him apparently *in extremis;* he was perfectly prostrate, covered with bed-sores, and racked with severe pain along the left ureter. The abdominal wall generally was found to be soft, yet at first nothing abnormal could be discovered by palpation; suddenly, however, on deep pressure being made about an inch to the left of the umbilicus, the patient started, and exclaimed—"That's it." No tumor could be detected. From the situation of the pain and the affection of the testicle, Dr. Dickinson diagnosed the presence of a tumor pressing on the descending colon and the nerves connected with the kidney. The absence of all urinary symptoms was opposed to the probability of calculus. The aspect of the patient was "malignant." Some six weeks afterwards pulsation was detected in the abdomen, to the left of the umbilicus; this increased in distinctness, and a pulsating mass was developed under Dr. Dickinson's observation. Shortly after Dr. Dickinson first saw the patient the pain abated—as if the tumor had freed itself of its attachments. The pain disappeared; health was far recovered; the bed-sores healed; the patient walked out. Fifteen months from the commencement of the illness, the bad symptoms returned. One day at dinner the patient suddenly fainted, and was with some difficulty restored by stimulants. Continuing in bed, he improved during the next two days, when he passed for the first time a large quantity of black blood by the bowel. Three days after, he again passed a mass of coagulated blood. He was kept quiet and treated with acetate of lead. One week from the first faint, again while eating his dinner, he suddenly put his hand to his side and fell dead. On post-mortem examination it was discovered that the tumor was an aneurism growing from the left side of the abdominal aorta, and passing backwards between the left ureter and the descending colon. It touched, not the left kidney, but the ureter one inch below. The nerves were involved; the ureter was stretched like a fiddle-string, The aneurism was as large as the fist, and had burst into the descending colon.

On Compression in Aneurism.

In some remarks on the surgery of arteries, in the *Lancet,* January 9, 1875, Mr. C. F. **Maunder**, F. R. C. S., says:—

Taking the teachings of nature, and selecting her most beneficent means of promoting spontaneous cure as a guide, the idea of treating aneurism by diminishing the flow of blood through it, by moderate pressure on the feeding vessel, suggests itself.

The merit of reintroducing, and carrying to a successful issue, compression—*indirect, moderate* and *intermittent*—is due to our Irish brethren; and from this surgeons advanced step by step to *complete* and *continuous* (instrumental and digital) compression, till, by the latter method, and the aid of either opium or chloroform, aneurism is often cured at one sitting. The avoidance of a cutting operation (even so successful a one as that of Hunter) naturally commended compression to the notice of surgeons; and accumulated experience speaks very strongly in its favor. This method has for its object the gradual filling of the sac by layers of fibrine placed one upon the other, as a decorator puts on his coats of paint, with a view either to fill the cavity or to strengthen the walls of the sac so as to enable it to resist the impact of the blood tending to enlarge it. To this end the flow of a certain amount of blood through the tumor is essential; and when the cure is accomplished, no more desirable result can be imagined. Occasionally the channel of the vessel remains open while the walls of the tumor are sufficiently thickened to amount practically to a cure, and thus, while the disease is arrested, circulation proceeds as in a state of health. This is a condition of parts much to be desired in the case of carotid aneurism, in order to avoid interference with the cerebral circulation. But the application of this intermitting method is not always successful, as in the case of R. J——, to be mentioned, where it failed after a trial of three and a half months; and often when it is so it is extended over weeks and months, as in Dr. Peaton's case, where an axillary aneurism was cured after a trial of three months. When comparatively painless, the necessary restraint is very irksome, and to persons of an irritable temperament almost intolerable, thus giving rise to much mental suffering. Physical pain, of a severe character, is not unfrequently attendant, and especially when compressing intruments are employed. The skin often becomes inflamed and vesicates or sloughs, causing a new source of distress, delaying treatment and postponing the cure. It may be said with some amount of truth that the above are accidents which ought to be avoided; that the method is good, and its application faulty. But you cannot make an irritable person patient at will, nor a tender skin tough at pleasure. By attention to details, and close watching such as few can command, a larger percentage of recoveries would accrue. One great advantage for compression is, that while the treatment is being conducted the collateral circulation is being established, and thus the risk of gangrene supervening on cure is greatly lessened. This is doubtless true in great measure, and, indeed, were it not so, only those whose aneurisms could be removed by amputation, or got well spontaneously with an open channel, would recover from the disease. At the same time, during the progress of an aneurism, and before treatment was commenced, the impediment offered to the progress of the blood to parts beyond the tumor by the aneurismal condition of the vessels, has already led to some enlargement of the anastomosing vessels, as was seen in Case 5, who, six weeks prior to ligature of his common carotid, had undergone amputation of the thigh for ruptured popliteal aneurism. An unusual number of vessels required ligature. On the other hand, this recently acquired freedom of circulation by collaterals has a tendency to make the limb independent for its supply of nutriment of the main vessel, and thus, in rare instances, the remedy if employed too long may obviate the very object we had in view—namely, to diminish the quantity of blood flowing through the sac. Again, the capability of the blood to deposit fibrine doubtless varies in individuals, and must take its place among the possible causes of failure in conjunction with compression. In one instance of popliteal aneurism seen by me, a nerve found running upon the superficial femoral artery, at the operation of ligature, was presumed to have been the cause of severe pain and of inability to bear compression.

(*b*) SURGERY OF THE NERVOUS SYSTEM.

Action of Calabar Bean in Traumatic Tetanus.

A fatal case of tetanus treated by the bean is reported from the clinic of Dr. Moses Gunn, in the *Chicago Medical Journal* for June, 1875:—

Mary Binz, Irish—married to German—aged 34. On the 19th of February, 1875, sustained a comminuted fracture of the lower third of the tibia and fibula, with compound dislocation of the ankle joint—Potts' fracture—and was admitted to St. Joseph's Hospital, February 25th.

March 2d, at 8 p. m., complained to the sister in charge, of sore throat and difficulty of swallowing. Was seen at 11 p. m. by Dr. Scheppers, the House Physician, who directed whisky and morphia. The first she refused to take; of the second she had one and a quarter grains in divided (¼ gr.) doses during the night.

March 3d, 10.30 a. m. Was seen by Dr. Hay. At this time her pulse was 130; respirations, 22, easy; temperature, 99.3°; she was bathed in hot sweat, her jaws were firmly clenched, the masseteric, sterno-cleido-mastoid and trapezius muscles quite rigid and hard to the touch. She swallows with difficulty, holds out her under lip with the thumb and finger of each hand to receive wine, her pupils are slightly contracted—probably from the morphia; the conjunctivæ are injected, and the face flushed. Dr. Hay ordered whisky, fl. ʒj, to be given every hour, and came to the city—four miles—to procure some ext. of calabar bean.

The following general notes show the result of the treatment:—

Thirty-one grains of the calabar bean extract injected. Duration of attack, from 8 p. m., March 2d, to 12.02 a. m., March 5—52 hours.

No muscular relaxation immediately after death. The first spasm was the beginning of the rigor mortis.

Temperature, high throughout, sank at death, and rose four degrees ten hours after death.

Nerves involved were the motor division of the fifth, the eighth, and the cervico-dorsal portion of the spinal cord.

Respiration very slightly (relatively) accelerated throughout the attack.

Profuse sweat; no urine.

Cutaneous anæsthesia; exalted reflex irritability; brachial plexus involved to the elbow, not below; roots and trunks, not peripheral branches.

Sciatic plexus, through which the original impression must have been conveyed to the centre, received no morbid impulse (efferent). Brain has now been forty-five days in strong alcohol.

(c) SURGERY OF THE EXTREMITIES.

Trephining the Long Bones.

The following interesting cases are given in the Virginia *Medical Monthly*, January, 1875, by J. S. Dorsey Cullen, M.D., Professor of Diseases of Women and Children, Medical College of Virginia, Surgeon to City Hospital, etc., Richmond:—

Case I. *Constant and Local Pains in the Tibia—Treatment, Trephining—Recovery, immediate and complete.*—A large and apparently healthy man, by vocation a stone-cutter, applied to me for relief from a "wearing," "gnawing," and continual pain in the lower part of the tibia, a few inches from the ankle-joint, which, for four or five years, had given him untold agony, and often incapacitated him for attending to his occupation. He thinks he had syphilis two years before the pain in the tibia began, though he does not remember having any other symptoms indicating constitutional infection, except those complained of. The gauntlet of medical advice had been run in every place where his trade called him, and from all he generally received iodide of potassium internally, with blistering and iodine applications to the seat of the disease. The potassa would alleviate for a time the pain, but upon its discontinuance, his sufferings would return. There was tenderness upon pressure over the seat of pain, but there was scarcely any enlargement.

I determined to trephine the bone, believing that if an abscess or sequestrum were not found, relief would result from the simple removal of a piece of the tense and irritated tibia. Markoe and Paget report similar results, and guided by their experience I performed the operation.

The Esmarch bandage was used, and completely exsanguined the periosteum, giving a clear and satisfactory view of the parts. There was nothing like caries, abscess or sequestrum discovered, and the only deviation from the normal condition observed was a softened condition of the bone. The wound was stuffed with carbolized oakum, and the leg kept elevated. *From the moment of the operation the pain ceased, and has not returned up to this present writing (nine months since the operation), though he walks and stands upon the leg ten and twelve hours during the day.*

Case II. *Disease of Humerus, with Hypertrophy—Intense Pain, with Swelling and Suppuration, of the Superimposed Muscles—Trephining—Recovery.*

A little negro boy, fourteen years of age, of strumous diathesis, was sent me from a neighboring county for treatment, with an enlargement of the shoulder-joint and upper two-thirds of the humerus, attended with considerable pain upon movement of the arm, and tenderness upon pressure. The origin of the mischief was a blow or fall some months previous upon the anterior portion of the joint, followed immediately by fever and swelling, and subsequently suppuration. The pus burrowed down the arm in a long sinus, and made its exit midway between the shoulder and elbow-joint. There was constant aching pain through the entire humerus, with loss of appetite, nocturnal sweats and fevers. The bone felt as large as the femur, and when moved or struck gave great pain. There was every reason to believe, in this case, that there was a large sequestrum in the bone, or a diffused abscess, and the operation of trephining was determined upon for the removal of both or either.

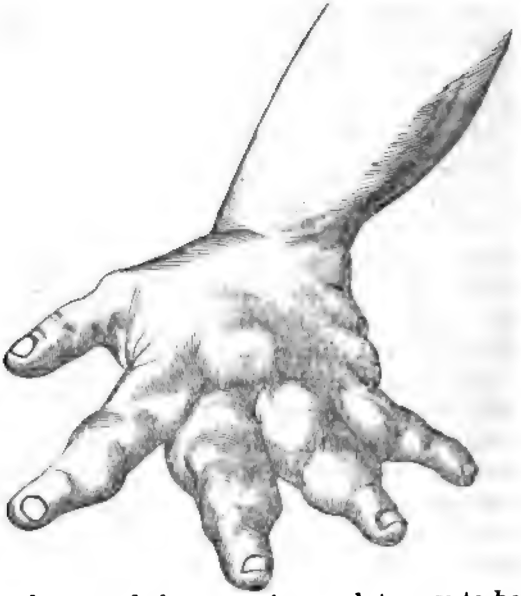
The bone was trephined about the centre of the enlargement, but no abscess or sequestrum was discovered. The wound was left open for drainage, and in a short time the boy was going about free from the aching pain and suffering which had so long troubled him. *It is now three years since the operation, and he uses the arm constantly at his work, with freedom from pain.*

Enchondroma of the Fingers.

The following clinical case is reported from the service of Dr. R. J. Levis, in the Philadelphia *Medical Times*, April 10, 1875:—

This boy, eleven years old, presents himself with a remarkable deformity of the left hand, caused by the presence of a large number of cartilaginous tumors connected with the phalanges. The history states that five years ago the affection was first observed on the back of the hand near the knuckles, since which time the tumors have been forming upon the fingers, and continually, though slowly, increasing in bulk.

There is also a large mass upon the humerus at the elbow, and another connected with the ulna, producing partial luxation of the joint, by which complete extension is prevented, but not flexion. The inferior extremity of the ulna, which is somewhat misshapen by excessive curvature along its shaft, is imperfectly developed, so that the bone is too short, and gives the wrist an unusual contour. The largest masses of enchondromatous materials are situated upon the first phalanges of the second, third, and fourth fingers, and also upon the second phalanges of the second and third fingers, while smaller tumors are seen connected with the remaining phalangeal bones. The motion in the joints is restricted, and in some places there is partial luxation, although the greatest bulk of the tumors, in most places, seems to be upon the shafts of the phalanges. There is some deposit at the distal ends of the metacarpal bones, and owing to abnormal relaxation, the fingers can be bent backwards until they stand at a right angle with the metacarpus. There is no pain in the tumors, which are benign, and only impair the functions of the hand by their bulk, which prevents the free use of the fingers; the boy can grasp large objects quite firmly, but delicate manipulations are impossible.



These tumors, which at a distance resemble osseous nodules, have a peculiar elasticity, and are simply masses of cartilage developed in the cancellated structure of the bones. This enchondromatous material has the character of the cartilage found in fœtal life, and may be deposited in various situations—as in the testicle or in the parotid region, as well as in bone. The disease is quite common in bones, and is one of the most frequent causes of benign tumors seen upon the fingers. Occasionally, but very infrequently, the growths assume a malignant character, and then may be followed by the gravest consequences.

The diagnosis of enchondroma is almost unmistakable, but errors have been made by supposing such tumors to be tensely-filled cysts, on account of their peculiar elasticity simulating an indistinct fluctuation. This error would be most liable to be made with enchondroma in or about the parotid gland. It should be borne in mind that the hardness of enchondroma, when not ossified, is never so great as that of normal cartilage, such as the costal, tracheal, and laryngeal cartilages.

The microscopic appearance of the structure of enchondroma shows a remarkable want of uniformity of cell-form and arrangement, and this irregularity is greater than in any other form of benign tumors.

"Enchondroma of the hand seems to be almost invariably associated as to its origin with childhood, or is congenital; and experience shows that the increasing development of the tumors usually ceases at the age of maturity. It has been remarked that the thumb is generally exempt from such growths, even when all the other fingers are affected. Although enchondroma of bone in general varies much as to its exact origin, in the hand the tumors always originate within the bony structure.

"In the ordinary location of such tumors, as on the long bones and the bones of the pelvis, there are many recorded instances of their enormous development. In one case, in which the tumor was developed around the entire shaft of the femur, its circumference was three feet, and the patient was relieved of the increasing burden by a successful amputation of the hip-joint. A cartilaginous tumor, involving the upper part of the tibia of a child, attained a circumference of two feet during a period of but eighteen months; and John Hunter removed an enchondroma, developed from one side of the face, which weighed after extirpation nine pounds."

The affection is not amenable to treatment by medication, and excision of the growths or amputation of the members affected would be altogether improper in this instance; therefore the boy must be content to carry this deformity with him throughout life.

Cancer of the Bone.

The pathology of this disease is illustrated in the following case, reported in the Detroit *Review of Medicine and Pharmacy*, December, 1874 :—

Dr. Inglis presented a specimen of the upper two-thirds of a right femur *post-mortem.* The history is as follows: The patient, a hatter by trade, first called the doctor's attention, some two years ago, to a tumor on the right side of the head about the size of a hickory nut, which interfered somewhat with the wearing of his hat. It increased in a few months to the size of a hen's egg, when it was removed by Dr. Webber. At the time of its removal it was regarded as a tumor of a simple fibrous character, and not malignant. Some months after this the doctor's attention was again called to an enlarged gland upon the neck, gradually increasing in size, The patient was at this time quite feeble, although able to attend to his trade. He was benefited by tonics. Again, in a short time, he called and complained of considerable pain in the right leg, the tumor still growing and general health failing. After this he passed from under the doctor's care, and employed another physician for about six months, when he was again called in consultation, it being stated that the man was dying with cancer of the neck. The tumor since last seen had increased to the size of a closed hand, and the pain in the leg had continued and become more constant and excruciating, with general emaciation, but more particularly of the leg. The doctor was sent for in haste one night, with the information that the patient had broken his leg while turning over in bed, and on arriving found the statement correct, and that the fracture had occurred at the junction of the lower and middle third of the femur. The limb was dressed in plaster-of-Paris and the patient made as comfortable as possible for the short time that he had to live. In a few days the leg was again broken, about three or four inches higher up, the fracture being produced in the same manner as before. The leg was still kept in the plaster-of-Paris dressing. The patient lingered on a short time and died. The *post-mortem* revealed a cancer of the scirrhous variety; all that portion of bone between the points of fracture was nearly absorbed, only small spiculæ of bone remaining. The leg previous to the *post-mortem* gave no evidence of any tumor.

II. MILITARY SURGERY.

Cases of Gun-shot Wounds of Knee-Joint and Pelvis.

Dr. Junius L. Powell, U. S. Army, Fort Leavenworth, Kansas, gives the following cases in the Virginia *Medical Monthly*, April, 1871:—

Case I.—*Gun-shot Injury of Knee-Joint—Recovery, with Anchylosis.*—G. L., First Lieutenant Company I, 5th Infantry, about 32 years of age, of good constitution and physical build. While escorting a wagon-train from Camp Supply, Indian Territory, to the headquarters of the Indian Territory Expedition, then near the Red River, Texas, on the 9th of September, his command was attacked by some 200 or 300 hostile Indians. At the first assault, L. was shot through the knee, the ball, a No. 50 rifle calibre, making its entrance at the inferior and anterior edge of the patella of the left leg, producing a slight fracture of that bone, and penetrating the inner condyle of the femur, was removed by a nick with a knife in the hands of a soldier from beneath the skin, just at the inner border of the popliteal space. No medical officer was in attendance at the time.

I examined the ball when I reached him, four days afterwards, and found it very much indented, and containing small spiculæ of bone impacted in its body. The four days alluded to were consumed in an attempt on the part of the savages, by repeated attacks, to possess themselves of the wagons and massacre the entire command, which had been entrenched behind them. Of the amount of nervous shock sustained by the patient in the first instance, I know nothing. When I saw him he was quite despondent. Opiates were used *freely*, and the limb put in a simple bandage dressing with carbolic oil.

Founding my opinion of the case upon the general experience of surgeons with gun-shot wounds of the knee-joint, I could not but feel the gravest apprehensions, not only for the limb, but for the life of the officer, while I indulged the hope that it might, by the most undivided attention to his case, be possible to save both. I also considered the trying ordeal through which he would have to pass in being conveyed in an ambulance over a rough country to the hospital at Camp Supply, nearly 100 miles distant. Would he be safer with the limb as it was, or with a stump? With these considerations in mind, I approached him cautiously, and informed him of the gravity of his situation; but to my great relief, he was unwilling to consider for a moment the propriety of an operation. On the 14th, I sent him, with other wounded, to Camp Supply, where he was under the skillful treatment of Dr. Cleary, the post surgeon, until the 18th of November, when he was discharged from the hospital, and left for Fort Leavenworth.

Dr. Cleary informs me that in three weeks he was sitting up, and in five from the time of receiving his wound, he was able to use his crutches. Upon the occasion of an official visit to Leavenworth, November 30th, I had an opportunity of examining the wounded limb, and found it perfectly anchylosed and shortened, but still an invaluable member.

CASE II.—*Gun-shot Injury of Knee-Joint—Recovery with Motion.*—F. S., Sergeant Company A, 6th Cavalry; age about 26; robust, healthy subject; was wounded at the same time and place by a rifle ball of the same calibre, which entered about the centre of the inner border of the patella of the left leg, fracturing that bone, and passing under it, made its exit on a line with and about one-fourth of an inch anteriorly to the head of the fibula. In about three weeks the man began to use his limb. There is no anchylosis or stiffening of the joint, and the patella, though much distorted in form, and about double its original size, is perfectly movable. He will resume his duties in the field.

CASE III.—*Gun-shot Wound of Abdomen through Pelvis—Recovery.*—Z. S. W., Sergeant Company I, 6th U. S. Cavalry, age about 28. While *en route* for Camp Supply, with a party of five others, as bearers of official dispatches, the party were, on the morning of September 11th, attacked by 100 or more Indians, and forced to entrench themselves in a buffalo wallow, from which position they defended themselves with desperate determination until rescued. One of the party was killed, and all the others wounded, two receiving two wounds each. W. was struck by a No. 50 rifle ball in the gluteal region, on a line parallel with the articulation of the sacrum and coccyx, about two inches to the left of the median line, and passing beneath the great sciatic notch and through the pelvis, made its exit anteriorly and about one-fourth of an inch to the left of the symphysis pubis, grazing the bone as it passed out. The man was not confined to his bed a day, and at the end of three weeks from the time of receiving his wound, he again took the saddle.

Remarks.—It is agreed among surgeons that gun-shot wounds of the knee-joint are serious lesions, likely to result in loss of limb and life. If the rule established by statistics is to be considered as of universal application, the above cases are rare exceptions. In looking over the pages of Gross, I find that "of upwards of forty cases of this kind in the French hospitals in the Crimea, in which an attempt was made to save the limb, all except one proved fatal. Of nine cases which occcurred in India, not one was saved. Guthrie never saw a gun-shot wound of the knee-joint, attended with severe injury of bones, recover without removal of the limb; the experience of Larrey was of the same nature; and Esmarch declares, as the result of his observations in the Schleswig-Holstein campaigns, that all lesions of this description demand immediate amputation of the thigh." The distinguished surgeon whom I have just quoted also declares on his own authority, that wounds, even when comparatively small, if they involve the epiphysis of the femur or tibia, imperatively demand amputation.

It should be remembered that most of these statistics are gathered from the hasty operations in the field of military surgery, where large bodies of troops have been engaged in bloody conflict, and where it could scarcely be expected that a single condition entirely favoring recovery from their injuries could come to the wounded. Is is true that the surroundings in the two cases which have been reported were by no means favorable; but where such a condition does not exist, is it not an error on the part of the surgeon to be too swift in applying the knife? My observation teaches me that in the single item of antiphlogistics alone, their character and mode of application to the injured part, the most contrary results may be wrought.

The third case is cited as one of those remarkable instances of the invasion of vital parts by projectiles from fire-arms, with comparatively insignificant results; while the whole constitutes part of a tragedy which, for heroic daring and desperate resistance to what appeared to be an inevitable fate, is without a parallel in the severe annals of border warfare.

III. MECHANICAL SURGERY.

Instruments for Operations in the Nasal, Pharyngeal and Aural Cavities.

Dr. Thomas F. Rumbold, of St. Louis, in a monograph published in that city, describes some inventions of surgical interest.

One of these is a Uvula Retractor, useful to avoid the excessive excitability of this organ.

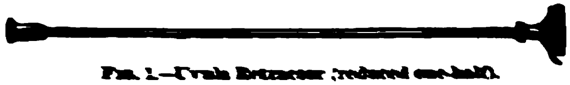


Fig. 1.—Uvula Retractor (reduced one-half).

A tube six inches long and one-eighth of an inch in diameter, having at one end an enlargement three-sixteenths of an inch transversely, and cup-shaped, for the purpose of receiving the uvula. The other extremity is trumpet-shaped, and one inch in diameter, and covered by sheet India rubber.

In its use the smaller extremity of the instrument is applied gently to the uvula, whilst the air is expelled from the tube by slight pressure on the rubber extremity. This done, the uvula is drawn into the tube about one-quarter of an inch. Only slight traction is necessary to lift the uvula and draw the soft palate forward; thus the antero-posterior diameter of the passage may be increased from one-quarter to one-half inch. If carefully handled, patients generally do not feel the application of the instrument.

In surgical cases it is necessary that the whole of the soft palate should be drawn forward to as great an extent as possible. For this a hook-shaped Retractor is the only kind that is reliable. As the patient is obliged to learn to tolerate the application of such an instrument, any form or shape that will dilate the parts, and not injure them, is all that is required.

In the early part of the year 1867, Dr. R. removed a large polypus from the superior wall of the pharyngo-nasal cavity. The greatest source of trouble, during the operation, was the difficulty encountered in retaining the soft palate sufficiently forward. As a narrow hook could not enlarge the passage to the extent desired, a wider one was employed; but, frequently, as soon as this was placed behind the relaxed velum, involuntary contraction of the pharyngeal muscles ensued, and severe pressure on its edges caused marked suffering of the patient. These circumstances led him to devise the Spreading Soft-palate Retractor (Fig. 2), which almost entirely obviates the difficulties.

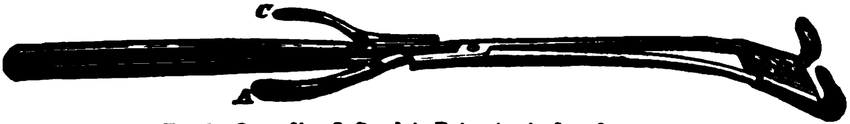


Fig. 2.—Spreading Soft-palate Retractor (reduced one-half).

The instrument resembles an ordinary palate-hook, split longitudinally; the surface of each hook that comes in contact with the soft palate is made convex, by binding the plates; the arms are separated by a lever (A) on the handle, and are maintained in this expanded condition by a retainer or wedge—connected with another lever (C) having a spring under it—which insinuates itself between them. The uvula is prevented from dropping into the operator's way by a small piece of thin rubber tubing (B) slipped on the arms over the hooks, which also answers to close the hooks on raising the wedge (C). The elasticity of the arms is such as to yield sufficiently to muscular contractions, when they do occur, to prevent injury to the soft palate.

The application is easy: the operator passes the closed hooks gently behind the relaxed or pendent soft-palate, elevating them sufficiently to engage the velum, then separates the limbs of the instrument by pressure on the lever first-named (A), which stretches the soft-palate laterally; then traction on the handle increases the antero-posterior diameter of the passage.

By the use of this instrument equal retraction of the velum palati—with both relaxation and tension at will—can be effected by the left hand, while the right is engaged in operating, and more room is secured during surgical treatment than by any other kind of retractor.

Another instrument—the Tubular Laryngeal Forceps—can be passed readily into the larynx, and then lengthened to the extent required to reach the vocal cords in the longest neck.

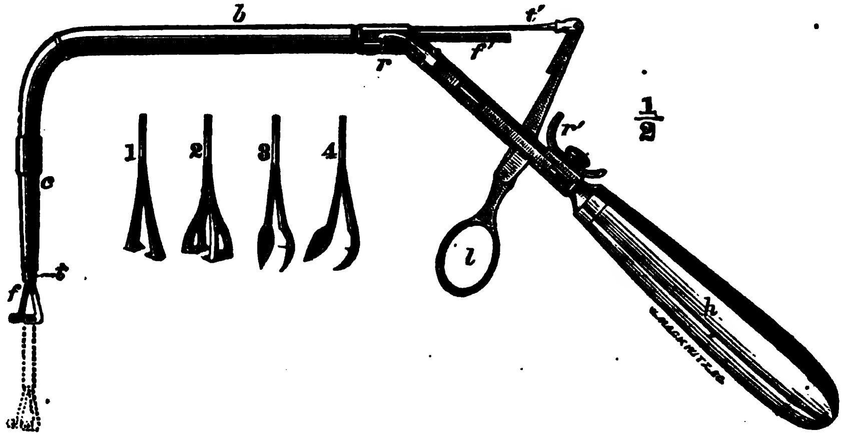


Fig. 3.—Tubular Layrngeal Forceps (reduced one-half).

It consists of a tube (*b*, *c*), seven inches long, bent at a right angle, forming a horizontal and a vertical portion, the latter (*c*) being two and a half inches long. To the horizontal portion of the tube (*b*) is attached a handle (*h*) six inches long, at an angle of 45°. On the handle is a lever (*l*) two and a half inches long; this is connected with a rod (*t′*) which passes through the entire length of the tubular portion (*b*, *c*), and is attached, at its lower extremity, to a smaller tube (*t*) within the larger one, by which the vertical portion (*c*) is lengthened, and the forceps closed at will. Underneath this rod, is another rod (*f′*), whose upper extremity is serrated, which also passes through the tubular portion, and terminates in a socket; into this socket is screwed the forceps (*f*). There is a slide on the handle, which is moved by a hook-shaped projection (*r′*). This is so connected to two levers which act as retainers (*r*) that pressure on the hook-shaped projeetion (*r′*) causes the retainer to grasp the serrated rod (*f′*) and retain it in the position desired, and thus prevent the further descent of the forceps. The outer side of each limb of the forceps is serrated, the purpose of which is to cause the descending tube, that closes them, to retain its hold, or position, even when the pressure on the lever is withdrawn. Forceps (1, 2, 3, 4 and *f*) of various shapes and sizes may be used.

The method of using the instrument is as follows: After the vertical portion (*c*) has been introduced into the larynx, it is lengthened by the lever (*l*) pushing both rods (*t′* and *f′*) into the horizontal portion (*b*, *c*), which causes both the smaller tube (*t*) and the forceps (*f*) to descend (see dotted lines). As soon as the length desired has been attained, then the serrated rod (*f′*) is arrested by pressure being made on the hook-shaped projection (*r′*) with the thumb, causing the retainers to grasp it firmly, retaining it and the forceps in the position required. The forceps are then closed by continuing the pressure on the lever (*l*), causing the rod which is attached to it (*t′*) to push the smaller tube (*t*) over the base of the forceps.

A Needle for Ligating Varicose Veins.

DR. GRANVILLE DOWELL describes such an instrument in the Virginia *Medical Monthly*, February, 1875:—

This is a shuttle, double spear-pointed and straight needle, four inches long, with an eye in each end. It is threaded with silver wire at one end, which is held by the operator in his right hand, while the vein—fully distended by means of a ligature around the limb above the point of trouble—is steadied by the left hand. The unthreaded point of the needle is then passed through the skin into the cellular tissue—the surgeon being careful to keep the instrument as close to the vein as possible; then turn the needle, pass it under the vein and out through the skin at the point where it was entered—thus enclosing nothing but the vein in the ligature. The ends of the wire (the needle being removed) are then twisted until the vein is completely occluded. Ligature after ligature is passed in the same manner below the one last applied, until all the varicose veins are strangulated. The limb is dressed with a roller bandage. The wires are left *in situ* until they begin to cause suppuration, when they are untwisted and withdrawn.

The first case in which I used this needle in the manner described, was one complicated with a large varicose ulcer; before the ligatures were removed, the ulcer had nearly healed—indeed, looked healthy, having lost all of it livid appearance and indurated character. I now apply this method to the cure of *varicocele*, while I always ligate in cases of *varicose ulcers* before attempting any other plan of treatment. Thus far I have had no unfavorable results, and the patients have had but little pain or suppuration.

Improvements in Staphyloraphy.

At a meeting of the St. Louis Medical Society, reported in the St. Louis *Medic and Surgical Journal*, January, 1875, Dr. D. PRINCE, of Jacksonville, Ill., by inv tation, introduced the subject of Staphyloraphy, in which he claimed three ne points:—

1. The employment of galvano-cautery to diminish the loss of blood, and, furthe to add facility to the operation and certainty to the result.

2. The introduction of automatic needles, both for the introduction of the platinu wire for cautery and for the taking of the final stitches for the closure of the fissu

3. A new interpretation of the functions of the muscles in the pillars of t fauces, from which he concludes that their division is not only useless, but also t jurious to the future completeness of the function of the palate.

He introduced the subject by a brief notice of the nature of cleft palate, hard a soft. The functional defect—what makes the nasal tone, and how it is overcome the importance of preserving unimpaired the muscles of the palate.

He referred to the division of the pillars of the fauces, as practiced by Ferguss as endangering the future perfection of function. Previous to the adoption of F gusson's method, Dieffenbach had made vertical incisions in the soft palate. T incisions do not interfere subsequently with the functional movements of the pa

Dieffenbach recommended that the parallel incisions should be made after the pletion of the sutures. The dangerous hemorrhage liable to occur led to the donment of this plan. The galvano-cautery permits us to restore this proceed Dieffenbach, and to carry it so far to the lateral base of the palate as to make cision most effectual, without fear of the loss of blood. Furthermore, we a to make this the *initiative* proceeding in operations upon the soft palate. By this means the automatic movements of the palate are annulled, and the paring of the edges of the fissure is performed with much greater facility. Even under ether, the half uvula on each side rises and falls with respiration, and the half palate approximates and recedes. The movement, in a great degree, ceases after the vertical incision.

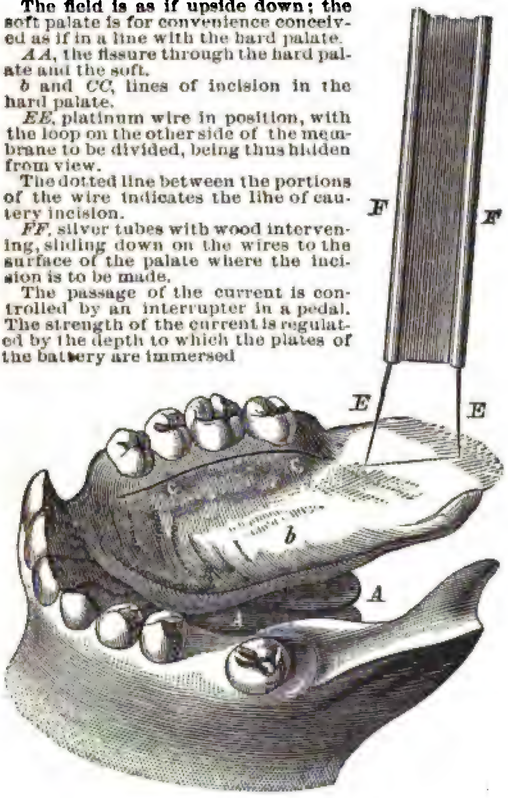


FIG. 1.

The method Galvano-cautery applicable to the soft palate.

The field is as if upside down; the soft palate is for convenience conceived as if in a line with the hard palate.

AA, the fissure through the hard palate and the soft.

b and *CC*, lines of incision in the hard palate.

EE, platinum wire in position, with the loop on the other side of the membrane to be divided, being thus hidden from view.

The dotted line between the portions of the wire indicates the line of cautery incision.

FF, silver tubes with wood intervening, sliding down on the wires to the surface of the palate where the incision is to be made.

The passage of the current is controlled by an interrupter in a pedal. The strength of the current is regulated by the depth to which the plates of the battery are immersed

The incision made by Dieffenbach had for its object simply the relief of the strain upon the sutures, and was practiced as the last step in the operation. With the cautery wire, and as a first step, it greatly facilitates the operation, at the same time that all possible strain upon the stitches is prevented.

Still further: these cautery incisions are packed full of oiled paper, which is held there by the sutures in order not only to take the tension off from the sutures, but really to crowd those surfaces together which are expected to unite. These stuffed openings, one on either side, will close up afterward. The crossing of muscular fibres favors this closure.

On the other hand, the muscular fibres all pull away from the median line, making a tendency to become larger instead of smaller. This pull upon the median line is sufficient, after union, to approximate the separated bony arch of the mouth, where there is, at the same time, an opening in the hard palate, making the fissure between the mouth and the nose narrower. This is a reason for closing the soft palate first and the hard palate afterward.

Note was made of the physiological objection to the plan of Fergusson, of dividing the palato-glossus and palato-pharyngis. It is found, by observation upon the movements of the curtain of the palate in halves, that the contractions of both these pairs of muscles approximate the sides of the cleft palate; in one case which was observed, causing the two halves of the uvula to come in contact.

The mode of this will readily be understood by recalling the manner in which the tongue is protruded by the genio-hyo-glossus. So, while the palate is stiffened by the fibres of the tensor palati, the levator palati, the azygos uvulæ, and by a few fibres of the palato-glossus and palato-pharyngis, the main portions of these last two muscles engage in approximating the two halves. To cut these muscles is, therefore, physiologically absurd, besides endangering their future functional perfection. Without the action of the palato-pharyngis, the perfect articulation of the gutturals is impossible. The loss of the function of the palato-glossus would not be seriously felt in articulation.

If this reasoning is founded on correct observation, the division of these muscles must speedily go into disuse. Their division is the result of the fear of the hemorrhage arising from the vertical incisions first made by Dieffenbach. Now that we have a safe way of making these incisions, we may dismiss this fear.

In an operation beyond the reach of touch by the fingers, great importance attaches to the quality of the instruments employed. The conception of the employment of galvano-cautery and its practice developed the necessity for an instrument capable of the more accurate introduction of a thread or wire than any I was acquainted with.

The needle illustrated in Figure 2 was exhibited, having a slide with a fenestrum closing down over the point of the needle.

The possibility of knowing the point of entrance, which is out of sight, and that the point of exit will correspond, is achieved. Importance of this in introducing the platinum wire for cautery—the parts at the lateral base of the palate being thick with much connective tissue between the muscular layers—was explained. The convenience of the same instrument for the sutures, for permanent retention, was also made clear.

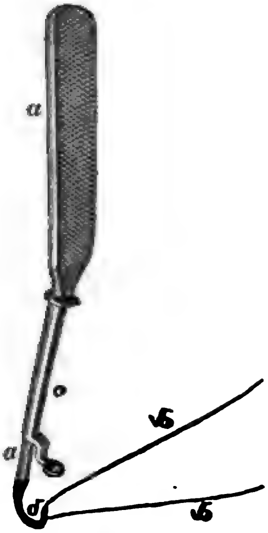


Fig. 2.

a a, a needle curved in the form of a tenaculum with an eye near the point *d*; *b b*, thread; *c*, slide curved at the lower end and fenestrated for the reception of the needle in order to insure the exit of the point of the needle opposite the place of entrance. The thread is to be picked up by a tenaculum.

Dr. Black, a dentist of Jacksonville, had made an improvement upon this needle, by which a pick-up pin is made to catch and hold the stitch, so that certainty of position and ease of execution are combined. The needles are made in two forms—in one the needle recedes from the operator, and in the other it approaches him. They are illustrated in Figures 3 and 4.

Closure of Cleft of the Hard Palate.

Dr. J. Mason Warren, of Boston, supposed that he was the first to peel the vault of the mouth to obtain the material with which to close a cleft in the hard palate, but it is claimed that (I do not know with how much truth) the expedient is of European origin, by Krimer.

Langenbeck has made this device a new one by the distinct recognition that the periosteum is necessarily peeled from the bone. To him is due the credit of having first recognized the importance of not cutting off the circulation of the flaps by the transverse section of the longitudinal vessels, derived from the descending palatine branches behind, and from the naso-palatine in front. The flap is left undetached in front and behind, while between the extremities it is peeled up and made to slide so as to meet its fellow in the median line. By this precaution, the danger of sloughing is greatly diminished.

Sir William Fergusson has recently practiced what he supposed a new expedient that of the division of the bony palate by means of a chisel; to find, afterward, tha Dieffenbach had practiced the same at least twenty years before.

This is Dieffenbach's method, copied from Velpeau's Surgery (Townsend's tran lation, edited by Mott, vol. 3, p. 396):

"He punches a hole through the edge of the cleft, and inserts a thick, soft silv wire, which is to be drawn and twisted as close as can be, after having first cut down upon and separated the palate bones, where they join the alveolar processes, by means of a thin, smooth, concave chisel."

When the division of the three layers (two membranous and one bony) of the hard palate is made, there is evidently greatly increased exemption from gangrene, as the vessels of the palatine vault are very little disturbed.

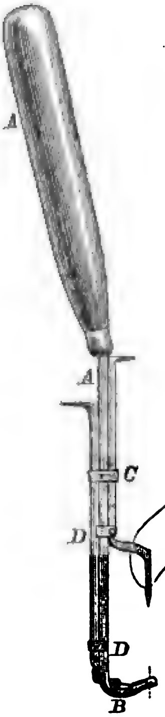


FIG 3.

Dr. Black's improvement on Prince's needle, being automatic.

A A, a shaft with handle at one end, and hook, *B*, upon the other end, fenestrated at the place of the dotted line for the reception of the needle, *C*, which has an eye near its point for the reception of the thread, *E E*.

D, a shaft moving a short stilette in *B* which picks up the thread.

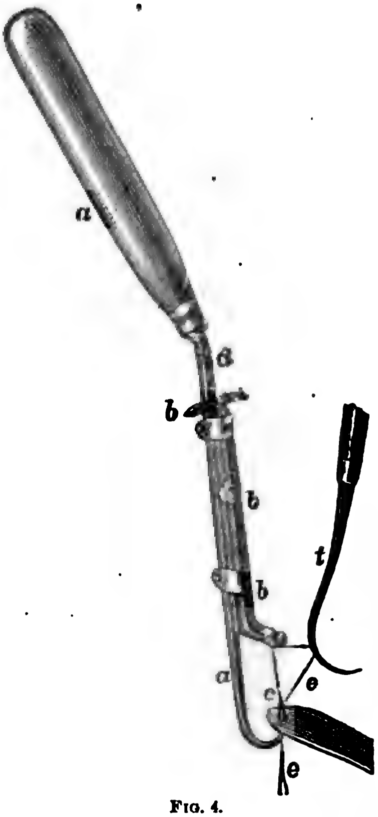


FIG. 4.

Another form of Black's improvement.

a a, shaft with handle and curved needle point, as in Fig. 2.

b b b, fenestrated slide for the reception of the point of the needle, *c*, holding the thread, *e e*.

p, pasteboard showing the position of the needle having pierced a membrane with the stitch already picked up.

d, the thumb piece of a shaft moving a short stilette in the lower end of *b b*, which picks up and holds the stitch.

It is found, by experience, that the openings along the alveolar border have a strong tendency to close by the process of granulation. The knowledge of this tendency makes the operator bold to bring the two sides of the arch together, without fear of the openings which he leaves alongside of the alveolar ridge.

Dr. Prince referred to a case of unilateral cleft in the hard palate, with median cleft of the soft palate, in which, after previous closure of the soft palate, the chisel was employed to separate the bony arch of the mouth from the alveolar process on the same side with the cleft, while, on the opposite side, the periosteum was peeled up. Sutures retained the two flaps in contact, and the roof of the mouth became permanently closed. Several months elapsed between the operation upon the soft palate and the subsequent closure of the hard palate; and it was found that, during this interval, the width of the cleft had considerably diminished.

IV. FRACTURES AND DISLOCATIONS.

The Value of Rest in the Treatment of Fractures.

On this subject Dr. R. KNAFL writes to the Detroit *Review of Medicine and Pharmacy*, December, 1874:—

It is a well known and capital rule which says: "Rest to the injured or sick man, and rest to the injured or sick part." This general rule is plain enough, and no secret about it; but the difficulty consists in its adaptation to the special case. For illustration, let us consider a case:

Fracture in the lower third of the humerus, near the elbow-joint. Here the question arises how to steady the short piece of the fractured bone. It would be easy enough to secure the longer upper part with splints, but it would be impossible to include the short lower part with the bandage in such a manner as to insure retention. It would seem quite reasonable to extend the splints and bandage further down, and by applying long, straight splints in front and behind the whole arm, keep the whole limb in a straight position. Would this treatment of the case be in accordance with the general, well known rule of perfect rest? We will see.

After six or seven weeks the surgeon removes the bandage; all is healed; patient moves his hand and fingers well, can make pronation and supination, but the whole limb seems a little too straight—anyhow straighter than men commonly hold their arms when hanging down beside the body. He tries to bend the elbow joint; it bends, but seems a little stiff yet. Well, thinks the surgeon, that will be all right in the course of time, and by exercise. But in the course of time the patient finds that it does not come all right; on the contrary, that he never can reach up to his face or head, and that his elbow joint is stiff to a very considerable extent.

On close examination, the surgeon finds a deep impression above the elbow joint, on the hind part of the upper arm, and the olecranon more protruding than that of the other arm. He is now certain that the short and lower piece of the fractured humerus grew in a wrong direction, backward, under a less angle to the axis of the arm bone. How did that happen?

He applied a bandage, by which the arm and forearm had been kept in a straight line. By doing so he kept the biceps, and the rest of the flexors, in the utmost extension, while the triceps and extensor muscles were relaxed. The extended (flexors) biceps can not stand it to be extended always; to come to rest, he would bend the elbow joint, if the splints were not in the way; his power reflects on the joint and the short piece of the fractured bone connected with it; draws it upward, bringing it under more or less of an angle with the longer part of the humerus; and, the shorter the short piece is, the sharper will be the angle between the two bones, because no bandage can hold a short piece so tight as to resist the constant traction of the muscles.

He put the whole arm to rest, but did not extend this rule to the muscles, also. Had he, by angular splints, kept the limb in the middle between extension and flexion, both extensors and flexors had been at rest, and all would have been well. Our backwoods surgeon could have done so by taking two splints of green hickory, bending them over a candle to proper angles, wrapping them in rags, applying one behind the other in front of arm and forearm, and keeping them in the proper position by circular bandage.

Dressing in Fracture of Clavicle.

Dr. C. E. Slocum writes to the New York *Medical Record*, January 9th, 1875:—

Fracture of the clavicle is of so frequent occurrence, and has been so annoying to the surgeon, that any evidence bearing upon its successful, and withal simple treatment, may be of service.

The form of dressing, in my opinion, superior to all others in simplicity, ease to patient and surgeon, and efficiency of results, is Professor Sayre's adhesive-plaster plan modified and applied as follows:

Three straps are employed.

The first encircles the arm of the injured side close to the borders of the axilla, and is then carried over the lower angle of the scapula and around the body tight enough to hold the shoulder well back.

The second piece commences over the point of the sound shoulder, and is carried obliquely across the back and over the olecranon of the injured side, drawing the elbow forward and close to the side, and then extending obliquely across the chest front to the place of commencement.

The third strap commences over the pectoral muscle, and is carried snugly over the point of the shoulder of the injured side, and obliquely down the back.

This third strap can be made a material aid in antagonizing the unfavorable action of the sterno-cleido-mastoid, subclavius, pectoralis minor, and deltoid muscles, while the support the shoulder derives from its influence in fixing the scapula and otherwise, materially contributes to the comfort of the patient and the favorable result.

To prevent pain and embarrassment of the circulation in the arm by the first strap, I employ a splint extending from near the point of the shoulder well down over the biceps muscle. This splint should be solid, hollowed to fit the arm, and just wide enough to prevent the strap from compressing the arm too much laterally.

The strap around the splint and arm should be stitched together to prevent slipping, and be loose enough to leave the arm a little free posteriorly.

The straps are cut three, or three and a half inches in width, and should be stitched together if one continuous strap cannot conveniently be obtained long enough to encompass the body.

The forearm, suspended in a sling, can be raised or lowered at will, if the elbow becomes painful.

When properly applied, this plan forms a dressing for this frequent injury. which will insure comfort to the patient and recovery without deformity.

The Management of Fractured Femur.

In an article in the *Lancet*, February 13, 1875, Surgeon T. Browne remarks:—

The best mode of neutralizing *excessive* or misdirected muscular contraction is always a subject of great interest to the practical surgeon; and the means employed for this purpose are so various that there is always room for personal ingenuity and improvement, such as Mr. G. B. Browne described and illustrated. Having seen numerous plans tried in various hospitals in many countries, I have come to the conclusion that the groin or perineum will not tolerate the pressure of counter-extending splints or bands should any considerable or prolonged action be necessary. If the surgeon does not yield to the entreaties of the patient, the latter either loosens the perineal band himself, or serious excoriation or even sloughing of the parts about the perineum is set up.

Hamilton, in his work on Fractures, says there have been a thousand varieties of extension in which the perineum is used as the fixed point, and he figures several very ingenious modifications of it; among others, that of Dr. Gurdon Buck, where elastic tubing is used; also that of Dr. David Gilbert, where the principle of making extension at the foot in a line with the axis of the limb is shown, thus avoiding the error of drawing the foot forcibly outwards against the long splint—a matter of grave importance, to which I think Mr. G. B. Browne also refers in his paper above quoted.

Mr. Winchester says the perineal band must be adjusted with care, as the length, when once fixed, must not be altered. This is a most desirable object, but one very difficult of attainment in practice. Either the perineal band is too tight in the first instance, and galls the patient if relief is not afforded, or the pressure is not sufficient to produce the required extension. Then, again, almost every kind of strap or knot yields a little after a time, or the material of which the band is made stretches, and the required fixity of the apparatus is lost.

So long as a perineal band is used as the means of counter-extension, no appliance for extension about the foot will prove effectual. Even the india-rubber band applied at the foot by means of a screw, fails to do this the moment the perineal band becomes a little slack, which, in my experience, it always does. It may be said that the elastic band, by its contraction, is to meet this easing off of the perineal band. But should the India-rubber band contract sufficiently to do this, the power exerted in the first instance must have been too great, if it is just equal to the requirements of the case now. The power exercised by the elastic band decreases rapidly as it contracts, the extending force diminishes every moment as the perineal band gradually yields, and finally ceases to act if the surgeon is not at hand to turn the screw, in connection with the foot-piece, such as Mr. G. Browne describes.

It seems to me that counter-extension is best obtained by elevating the bed at the foot a height of four or six inches. This tilting is borne without much inconvenience by the patient, and is sufficient for all purposes. Extension is to be made by means of a weight running over a pulley at the foot of the bed, and attached to the leg by means of adhesive plaster. The great secret of applying the extending plaster effectually, so as to avoid slipping, is to cut the plaster of sufficient length to extend almost to the knee, and broad enough to encircle the leg at its upper part about the calf, then gradually narrowing to a breadth of about two inches opposite the ankle. A strip of plaster four feet eight in length and four inches in breadth at the end is usually enough for an adult, but the limb should be measured if a good fit is wanted. The plaster must be smoothly applied along the outer and inner sides of the leg, slitting it at the top if necessary to make it lie neatly. It will be found that a loop of two or three inches long extends beyond the sole of the foot. In this loop must be placed a piece of wood of sufficient length to prevent the malleoli being pressed on. A convenient size for the foot-piece for an adult is about three inches and three-quarters long by two inches broad; in its centre is a hole to receive the cord to which the weight is applied.

A bandage is then applied from the toes to the knee, passing the bandage beneath the plaster till the ankle is reached, from whence it is carried over the plaster. The weight must not be attached for at least six hours afterwards, in order to allow the plaster to settle and penetrate into the skin. Extension strips applied in this way will remain without any material amount of slipping for a period of six weeks.

The thigh should be fitted with four carefully-padded splints, one on each aspect of the limb, extending the whole length of the thigh as far down as the condyles, except the posterior splint, which should extend two inches below the knee, to aid in steadying the joint. There ought to be an interval of half an inch between the sides of these splints. The extending weight having been applied, these splints are to be secured to the limb by two straps with buckles fastening, for convenience, on the front of the thigh. The extending weight will vary with the requirements of the case; a rough rule is one pound for each year of age up to twenty.

It only now remains to apply the long inner and outer splints. In connection with the application of the long outer splint there is a difficulty not often referred to, and yet very troublesome—viz., the tendency of the splint to become displaced towards the anterior aspect of the limb. This is easily obviated by attaching a piece of wood across the lower end of the splint at right angles to it. The cross-piece need not be more than nine or ten inches long, and for convenince may be of the same breadth at its centre as the long splints (four inches and a half), gradually sloping off towards each end. This effectually prevents any tilting of the splint. This long splint, extending from the axilla to four or five inches beyond the heel, with its cross-piece attached, is to be placed on the outer side of the limb, whilst another splint, also four inches and a half broad, and extending from near the perineum to the ankle, is to be placed on the inner side of the limb. These splints, of course carefully padded, are in their turn secured by a few straps to the leg and thigh; three will usually be sufficient. A broad strap is finally passed round the body, and secures the long splint to the side. A pillow or air cushion can be placed under the limb, so as to relieve the heel from pressure. These long splints are not employed for the sake of making extension or even for coaptation, but solely to prevent eversion or inversion of the limb. For the purpose of securing the splints in position, straps have the great advantage over bandages that the former are easily loosened or tightened, or even admit of the splints being removed and any little adjustment made, without in the least disturbing the limb.

Transverse Fracture of the Patella without Separation of the Fragments.

The following case is given in the *Southern Medical Review*, by T. Curtis Smith, M. D., of Middleport, Ohio:—

Early in the month of December, 1872, Mr. J., a stout, muscular colored man, æt. 51, while working on ice, slipped and fell heavily on his right knee. He felt considerable pain and weakness in the joint, but walked a short distance to his house. I saw him the next day and found a transverse fracture of the patella, the fragments still in close contact, the upper one elevated above the level of the lower piece. The leg was semi-flexed, the patient sitting in a chair. To extend the limb rather increased the relative elevation of the upper fragment. To flex it to nearly a right angle at the knee, brought the fragments in exact coaptation. There was also a fracture of the external condyle of the femur, the line of fracture being semilunar in shape. There was but little displacement of this fragment, and but slight direct pressure required to return it to its proper place. The broadest portion of this condyloid fragment was three-fourths of an inch in width, and extended to, but not into, its articular surface.

For either fracture no apparatus was at first applied, but the leg was ordered to be kept semi-flexed and strict quietude enjoined.

A few days later, Dr. E. C. Fisher, of this place, saw the case with me. The patient had not obeyed my orders, but had risen, even walked around his room, and was sitting up, on our arrival, with leg but slightly flexed. On inspection the upper fragment was *found to be actually overriding the lower one.* This condition was so directly the reverse of what we would usually expect, that each of us examined it very carefully, and were satisfied that such was the fact. *On flexing the leg, the upper fragment* slipped into its natural site, closely coaptated to the *lower* fragment. After this date the leg was kept constantly flexed until firm osseous union occurred, which was complete in about six weeks. No observable deformity was left from either fracture, and a perfectly useful limb was the result.

The history and results of this fracture in this case are directly opposed to what usually obtains. We always expect a wide separation of the fragments in transverse fracture of this bone, the separation being caused both by contraction of the quadriceps extensor, and by effusion into, and swelling of the joint, by which the upper fragment is either drawn or pressed upwards. There was no injury done the quadriceps extensor, no evidence of local paralysis, nor any apparent reason why the force usually exercised by that muscle should not attain in this instance, as in others; I only know that such a condition as that above described, was really and plainly present.

Every authority on this point mentions separation of the fragments as one of the constant and most pointed diagnostic signs of transverse fracture of the patella. This case certainly constitutes one well-marked exception to the general rule, and I have not been able to find a similar one reported. I report the case for its rarity more than for any practical interest relating to it.

V. AMPUTATIONS AND RESECTIONS.

Spasms in Stumps.

In the Philadelphia *Medical Times*, February 13, 1875, Dr. S. W. Mitchell writes:—

Among the peculiarities of stumps is a liability to spasm of the muscles, which assumes at least three distinct forms, two of which I have already described. One of these is the chorea of stumps,—a strange affection (see "Injuries of Nerves," p. 364), in which the limb is kept constantly in the most active motion. Since I first delineated this disease from the case of Col. P., who is still its victim, I have met with other examples more or less remarkable, but none so striking as his. I am satisfied that *early* section of the nerves would cure it; but so far I have had no chance to test the value of my belief.

The second form of spasm is usually but not always connected with pain in, or, rather, referred to, the lost part, and with sense of spasm in that part. There is a quivering and twitching here and there in the severed muscles of the stump. It comes and goes, in some is rarely absent, in others is seen only when there is pain, and in all is worse when the watery winds prevail. As to this point I have long ceased to doubt, and lately one of my patients has most absolutely confirmed my belief. This gentleman has kept a record, reduced to curves, of the thermal, barometric, and hygrometric states of the air, of the winds, and even of the ozone, and by following the lines of the pain-curve it is possible to see just what atmospheric states favor in him the condition—pain. This curious and valuable record, kept by a man of great accuracy and remarkable scientific endowments, I shall before long make public. Suffice it now to say that it proves most perfectly the capacity of the stump to indicate by pain and spasms the approach of winds which bring rain, and not alone the east wind, which some of my patients insist is the only one thus competent.

In some cases the twitching is only in one or more muscles, not in all, and, when limited, is in certain cases useful, because, as the neuro-muscular distribution is rarely anomalous, and as the seat of pain in the lost part is not always distinct, we can tell by the muscles concerned in spasm what main nerve-trunk must be cut to relieve the pain.

As a more innocent malady, without pain as its companion, this local twitching of stump-muscles is very common. I have said that there were three forms of stump-spasm; but there is one more which is excessively rare, and is apt, when it does come, to follow some sudden injury to a tender stump.

This form of spasm is not so much in the stump as in the muscles of the same limb which are a little remote and have not been severed by the knife. It consists in a single violent tonic contraction three or four times a day,—a spasm which is like a cramp, and is horribly painful. I have seen this but twice. In one case the deltoid was concerned, and in another the short intra-pelvic flexors of the thigh. The attacks in both followed a blow; in the first case on the stump, in the second on the groin (a thigh-amputation high up). In both relief was obtained by ice-dressings and leeching.

My last form of stump-spasms is altogether peculiar, nor can I find it described elsewhere; but, as I have said, this is not surprising, because the surgical literature of stumps is disgracefully small and incomplete.

In some cases of myelitis, in some instances of spinal sclerosis, and in rare hysterical conditions, the affected limb is liable to become suddenly and often most violently convulsed, the spasms in certain instances extending to the rest of the body, and in others remaining confined to the member in which they began. These attacks appear in some cases to be spontaneous, or, rather, to be discharges of force from motor ganglia in abnormal states. In other examples they are brought about by any cause which, like a blow or tickling, operates from without through the afferent nerve-tracks. This description applies equally to the stump-spasms I am about to describe.

I saw the first of my cases during the war, and shall describe it from memory, as I have mislaid my notes.

A sergeant lost his leg from a Minié-ball, which necessitated an amputation above the right ankle. At least three months later, he began to have pain in the stump and absent foot. It was not severe. The pain was associated with twitches of the stump-muscles. About nine months from the date of amputation he received a fall on the stump, bruising it badly. Some days after, while washing it with cold water, it became agitated, and finally convulsed, the extensors and flexors acting irregularly. The attack lasted a few minutes, and was the first of many such, which increased in severity until any rough touch brought on a fit that at length resulted in twitches of the right pectoral muscles; but at no time were there any marked cerebral symptoms. The patient soon after passed from under my care. Among the hundreds of stumps I have seen since, I have met with a number of like cases.

Resection in Abduction of the Great Toe.

Dr. A. Rose illustrates this plan of treatment by recording the annexed case in the New York *Medical Record*, January 30, 1875:—

A. C., fifty years old, born in Ireland, laborer, was received into the St. Francis Hospital, October 24th, 1874, suffering from phlegmonous inflammation of the right leg. While treating him I noticed that the patient was also afflicted with hallux valgus on the right side.

After having obtained his consent, I performed, on October 30th, resection of the head of the first metatarsal bone, in strict accordance with the method recommended by Huster. After making a small longitudinal incision along the inner margin of the foot along the diseased portion of the metatarsal head down into the bony tissue, I lifted the soft parts *together with the periosteum* and the sheaths of the tendons from the surface of the bone and then decapitated the bone with the straight narrow saw.

My experience has led me to consider this saw as the instrument *par excellence* for such operations, especially for subperiosteal resections of the ankle-joint, providing a certain degree of skill is acquired by frequent trials on the cadaver.

Concerning the after treatment, Dr. Hamilton and myself have employed the warm-water bath for the purpose of preventing the only dangerous complication, viz., suppuration of the sheaths of the tendons and consecutive phlegmonous inflammation.

The method of superiosteal and subcapsular resection itself already avoids this danger and renders the permanent both unnecessary.

In this case I still used the permanent bath on account of the patient's tendency to phlegmonous inflammation. But the patient complaining of pain while in the bath, and feeling better without it, I desisted after a few days from immersion, and ordered instead moist applications. Having left St. Francis Hospital soon after performing this operation, I was informed by my former assistant, Dr. Edebohls, that lint, fastened by adhesive plaster, had been applied to the wound, that an abscess had formed over a neighboring metatarso-phalangeal joint, which was opened and soon closed.

The patient having fully recovered, was discharged with well-formed and perfectly useful foot.

Supracondyloid Amputation of the Thigh.

Prof. W. Stokes read a paper before the Surgical Society of Ireland on this special form of operation, reported in the *Irish Hospital Gazette*, February, 1875, in which he again drew attention to the advantages which he considered might be claimed for it. He laid on the table casts of the stumps resulting therefrom in seven cases which he had himself operated on, and also a cast of a stump from a case of Mr. B. Wills Richardson's, upon which that gentleman had performed the operation with a most successful result. A case which Mr. MacNamara had also operated on with equally good results was likewise alluded to. Prof. Stokes' paper contained the particulars of the last two cases upon which he had performed supracondyloid amputation, according to the rules laid down in his former communication to this

Society and to the Royal Medico-Chirurgical Society of London (May 20th, 1870). In both these cases the operation was undertaken in consequence of necrosis of the upper third of the tibia, with synovial effusion and thickening in the knee-joint, and for extensive necrosis of both bones of the leg respectively. Both patients recovered well, and with good, shapely and useful stumps, which the members of the society had an opportunity of inspecting after the meeting. The author drew attention in chronological order to the various operations in the vicinity of the knee-joint which preceded the supracondyloid amputation; viz., those of Velpeau, Lane, Syme, Carden, Gritti (of Milan), Melchiory, and Prof. Rizzoli, of Bologna. The success of the operation depended upon the site of the femoral section, which should be from half to three-quarters of an inch above the articular cartilege. The medullary canal was not thereby opened, and the liability of the split patella tilting upwards obviated. To prevent the latter tendency Prof. Stokes had, in the last cases he operated upon, stitched the surfaces of the two bones together with carbolized catgut sutures, and left the ligature in. The advantages which Prof. Stokes claimed for this operation were twofold: first, those peculiar to the situation at which it was performed; and secondly, those peculiar to the operation itself. In the first category might be enumerated the circumstances that the stump obtained was more useful than that from other amputations of the thigh, and the danger and shock of the operation less; that there was diminished liability to the formation of tubular sequestra; that pressure could be borne on the face of the stump, and that the patient could walk without appearing as if he had anchylosis of the hip-joint. The special advantages were: 1. The posterior surface of the anterior flap being covered by synovial membrane, there was less danger of suppuration and of purulent absorption. 2. The possibility of the patella slipping was prevented. 3. The existence of an osseous covering to the cut surface of the femur. 4. The vessels were divided at right angles. 5. The diminished liability to sloughing of the anterior flap from its being covered with synovial membrane; and also the resulting rounded-cone form of the stump, which had no tendency to become conical. 6. The preservation of the normal attachments and functions of the extensors of the leg. In conclusion, Prof. Stokes remarked that as yet the mortality after this operation in Ireland had been *nil;* and that he had received most favorable opinions as to its advantages from several surgeons, including Messrs. Wheelhouse and Jessop, of Leeds.

Resection under the Antiseptic Treatment.

Professor R. **Volkmann**, in a very interesting article in the *Berliner Klinische Wochenschrift*, December 14, 1874, quoted in the *Medical Times and Gazette*, January, 1875, on resection of the shafts of the femur or tibia, or both bones, to straighten a limb contracted from old disease of the knee-joint, has taken occasion to give an account of the influence of the antiseptic treatment in the hospital at Halle. He begins his article by saying that probably some surgeons who are obliged to treat their patients under unhealthy conditions may consider such osteotomies unjustifiable from the risk to life entailed, and he agrees that their justification can only rest on the possibility of guaranteeing a successful result; but he adds—"We think that without assuming too much we may say that we have by degrees attained sufficient practice and experience in carrying out the antiseptic treatment to be able really to promise such a result with certainty."

He then goes on to give a few statistics of the cases in the hospital at Halle since this method of treatment was introduced two years ago (November, 1872). Of all the compound fractures in which conservative treatment was attempted, even including those cases in which it was only resorted to because the patients would not submit to amputation, and those in which, on account of gangrene or hemorrhage, amputation had to be performed subsequently, not a single one has proved fatal. The hospital affords the most unfavorable hygienic conditions, and is always overcrowded, yet the number of compound fractures treated successfully in this way amounts to thirty-one, amongst which are no less than nineteen of the leg, and two compound comminuted fractures of the patella, both of which recovered with a movable joint. No case of pyæmia has occurred for a year and a half, though during this period as many as sixty major amputations have been performed.

The rest of the paper is occupied by an account of a few of the conditions of anchylosis which may lead to the necessity of some form of osteotomy for straightening the limb, and of the cases on which he has operated during the last year. Amongst the former the most interesting is an elongation of the condyles of the femur, as a result of the removal of the pressure of the head of the tibia owing to prolonged flexion of the knee. This elongation effectually prevents straightening, even though some mobility remain in the joint, and also exaggerates the tendency to dislocation of the head of the tibia into the ham. The number of cases treated during the last year was thirteen, ten of which healed without a trace of suppuration, and the other three with the smallest possible amount. Two were reported in the first number of the *Centralblatt für Chirurgie*, April 4, 1874 ("Ueber die Osteotomia subtrochanterica"), and of two a detailed account is given at the end of the present article. The latter were both girls about thirteen years of age; in one the shaft of the femur, and in the other the shafts of both femur and tibia were divided with a chisel close to the joints; both were treated with strict antiseptic precautions, and recovered, like the rest of the thirteen cases mentioned before, without a trace of suppuration or the slightest local reaction or constitutional disturbance. He describes how the blood-clot resulting from the operation remained between the lips of the wounds up to the time of cicatrization, the most superficial layer being at last separated by the growing in of epidermis from the edges, and thus indicating that healing had taken place not only without suppuration, but also without granulation. The duration of the two cases from the day of the operation to the time of complete closure of the wounds and consolidation of the bones, was respectively August 8 to September 11, or thirty-four days; and August 12 to September 14, or thirty-three days. Both patients at the time of writing the article were able to walk with a high-soled boot, one of them without even the aid of a stick.

VI. LOCAL SURGERY.

(*a*) HEAD, NECK AND CHEST.

On Hydrocele of the Neck.

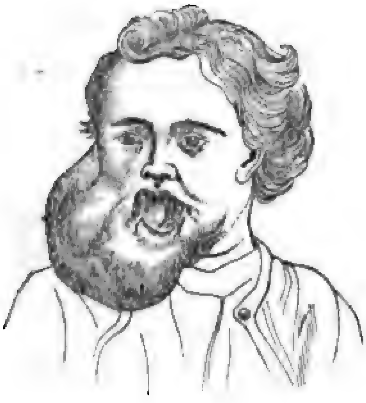
Mr. Sampson Gamgee, surgeon to the Queen's Hospital, Birmingham, writes to the *Lancet*, February 27th:—

In March last year, Mrs. D——, from Wolverhampton, called on me with her youngest child, a healthy-looking boy two years old, who had a tumor on the left side of the neck. The growth was noticed very soon after birth, and had steadily increased to its present size. When the clothes were removed, I found a round, smooth mass occupying the whole left side of the neck, and projecting over the clavicle on to the upper part of the pectoral region. Fluctuation and translucency being very distinct, I introduced a trocar at the most dependent part in front, and drew off nearly a pint of pale, straw-colored and richly albuminous liquid. After closing the aperture with styptic colloid, and applying a cotton-wool compress, I requested to be informed of the progress of the case. I heard nothing of it for eight months. When the child was again brought to me last December, the tumor was larger than when first seen, and the contents, though still liquid, had undergone a bloody change. The mass was no longer translucent, and the skin was uniformly bluish. I introduced two ordinary-sized drainage tubes from back to front, at a distance of a couple of inches, and applied a tenax compress. A considerable quantity of reddish fluid oozed through the tubes, but as days elapsed the mass did not perceptibly lessen, and it became evident that something more must be done to effect a radical cure. Dissection has proved that these congenital cystic growths in the neck are under the fascia; and in the particular case entire removal would only have been possible after a dissection attended with risk. With a view to effect a cure with the utmost safety, I removed the two small drainage-tubes, and while my friend and colleague, Dr. Mackey, administered chloroform, I made an incision on the anterior aspect, a little below the middle line of the tumor, and pushed into its centre an India-rubber drainage-tube, two inches long and a quarter of an inch in diameter; the anterior extremity of the tube projected slightly from the wound, and was kept in position by a loop of thread on each side secured by adhesive plaster. At the end of a week a great deal of irritation had been set up; the mass was hot and semi-solid; the child was feverish, and the discharge semi-purulent. The tube was now removed, and a linseed poultice applied. Within a week three separate collections of matter were evacuated by the aid of the lancet; fever subsided, a dry pad was applied with daily increasing pressure, and the rapid decrease of the enlargement. No trace of it is now perceptible, and the child is perfectly well.

Case of Vascular Tumor of the Face.

In a clinical lecture by Dr. R. J. Levis, given in the *Medical Times*, April, 1875, the annexed instructive case is recorded:—

A male child, aged two and a half years, presents an immense tumor, involving the entire cheek and lower lip upon the right side, and projecting into the cavity of the mouth. At his birth it was the size of a hen's egg, but by continuously increasing it has now attained a great bulk, forming a pendulous mass, extending backward from the middle of the lip, and bulging about four inches forwards. The inferior maxilla has become deformed, and the teeth displaced, by the pressure and dragging of the tumor; and it projects so much into the cavity of the mouth that it is almost impossible for the patient to put the teeth of the two jaws in contact, and he has therefore been obliged to subsist almost exclusively on a fluid diet.



The tumor is painless, soft to the touch, its surface purplish in color; and the slightest scratch upon it is followed by copious hemorrhage, from the recurrence of which the child has at several times almost perished.

All these points render the diagnosis clear, and prove the tumor to be a nævoid growth or hypertrophied condition of the capillary vessels, which must be removed if the patient is to have any chance for his life, since it is rapidly growing, and the occurrence of uncontrollable hemorrhage may cause his death at any time.

Nævoid tumors are usually congenital, and their most common site is upon the head and face, though they may occur anywhere, since they are pathologically merely a hypertrophy of the capillary arteries and veins; in some cases the arterial, in others the venous element predominating. They may increase in size until they, as in the present instance, attain an enormous bulk; they are also temporally enlarged and made more turgid by crying or any exertion on the part of the patient which increases the intravascular blood-pressure..

The location of vascular tumors is generally in the subcutaneous connective tissue or the skin, so that they are entirely covered by healthy integument, or, as is more frequently the case, the vessels of the skin are blended with the tumor, and an appearance of vascularity is evident, especially at the most prominent part of the tumor. These tumors becoming ulcerated, hemorrhage may supervene, which, if profuse, may jeopardize the life of the patient. In some cases, when they have been allowed to remain until adult life in females, they have been the seat of vicarious hemorrhage at each catamenial period.

In this case the tumor is probably, like most nævoid developments of childhood, a mass of tortuous veins, which are varicose and cavernous. The term aneurism by anastomosis has been applied to nævoid tumors, but especially to those with a decided predominance of the arterial element, and in which pulsation, synchronous with the heart, is often evident.

Vascular tumors when superficial can scarcely be confounded with other growths, for the pulsation, the more or less complete emptying under pressure, and the increase in size during excitement or when held downward so that the blood gravitates into them, are sufficiently characteristic. When located in the deeper structures, however, the evidences may be masked and very obscure, so that a positive diagnosis may be exceedingly difficult.

The usual treatment is to tranfix the nævus with pins, around which a ligature is wrapped, and the growth thereby strangulated and allowed to slough; or excision may be practised in order to remove the angeioma, which method, however, is generally accompanied by a good deal of bleeding. In this case the size of the mass renders it inadvisable to attempt strangulation, and therefore it shall be excised, after hemorrhage has been guarded against by thrusting a number of long acupressure-needles through the tissues around its base, so as to cut off the entire blood-supply. It would hardly be possible to extirpate the mass by keeping the knife entirely in the surrounding healthy tissue, and if the least portion of the angeioma remain it would bleed profusely from the cut surface. Hence it is better to apply acupressure at the base of the tumor to all the afferent vessels before commencing the operation of excision. The first long acupressure-pin is entered at the angle of the jaw, and pushed forward along the bone, to control the facial artery, which has been dragged somewhat out of position; the coronary is next compressed in a similar manner; and so a half-dozen long pins are thrust through, thus circumscribing the base of the tumor, and overlapping each other somewhat, in order to guard every point. Strong cords are then wrapped around the needles, including the base of the tumor, to render it still more safe, since the child, enfeebled by previous hemorrhages from the surface of the growth, can ill afford to lose any blood during the operation.

The knife is now carried around within the line of the circumscribing pins, and the mass, consisting of a network of hypertrophied vessels, removed. The tumor now looks quite collapsed and shrunken, for the blood has all flowed out of the spongy mass. There will be no attempt made to draw the edges of the large, gaping wound together, and of course the acupressure-needles shall remain for a day, or longer, unless there be appearance of sphacelation caused by them. The dressing shall consist of the carbolized oil so much used in this hospital. * * * * * *

The patient, after having continued for almost a week in a favorable condition, began to show signs of exhaustion, probably due to the imperfect manner in which he had been for a long time fed on merely weak fluid nourishment. He finally became unable to take proper and sufficient food, and soon died, exhausted.

(*b*) NOSE, MOUTH AND THROAT.

An Extensive Epithelioma of the Lip removed by Sulphuric-Acid Paste.

Dr. PINCKNEY THOMPSON gives the following case in the *American Practitioner*, March, 1875:—

Mr. E., a wealthy planter of Henderson county, fifty-five years of age, consulted me in September, 1863, about a growth or formation on the lower lip, which caused him some inconvenience. He described it as a hard, dry scab, which would become detached and fall, leaving the denuded surface very sensitive, and causing sometimes a very slight bleeding. Another scab would soon form and run a like course. The period of these changes was variable, sometimes occupying but two or three weeks, again extending through several months. I advised the immediate removal of the growth, but the patient would not consent.

I did not see Mr. E. professionally again until the summer of 1865, when my attention was specially called to the lip trouble. The sore had now visibly increased in size, having invaded the lip below its red border, and forming a hard, gristly tumor about the size of an ordinary army-bean. I advised the patient to give up his cigar—he was an inveterate smoker—and again insisted on removing the tumor. The cigar was discontinued, but the operation was declined.

I heard little of the case from that time until November, 1872, when, being called in to see another member of the family, I learned to my surprise, and I may add regret, that Mr. E. was at that moment in an adjoining room with a "cancer doctor" from somewhere in Indiana, who was attempting to remove the tumor with a caustic which he professed to have invented. This "caustic," according the charlatan's story, had, of course, cured its hundreds without a single failure. In this case, however, it did fail after two trials. In fact it not only failed to relieve or remove the tumor, but caused fearful and fruitless suffering, and certainly seemed to aggravate the disease, the local irritation following its use appearing to increase the size of the tumor with great rapidity; it also increased the pain.

The following March, 1873, Mr. E. consulted Dr. D. W. Yandell, who concurred in the opinion that it was epithelioma, and advised its immediate removal. My patient, preferring to have this done at home, returned; and on the urgent recommendation of Dr. Hanna and myself, fortified by Dr. Yandell's opinion, he at last consented to an operation; but had such a dread of the knife, and insisted so on the use of a caustic, that we yielded to his strongly-urged preference.

On May 21, 1873, assisted by Dr. Hanna, I applied, as Dr. Yandell had recommended should be done, the sulphuric acid paste* to the entire mass, which at this date included almost the whole of the lower lip. After protecting the sound tissues by means of adhesive plaster, I proceeded to apply the caustic, by means of the handle of a silver spoon, layer upon layer, until it reached one-fourth of an inch in thickness. The pain which ensued was somewhat severe, but lasted only about forty minutes. Destruction of the entire cancerous tissue soon followed, and by the next morning seemed to be complete. I now directed flaxseed poultices, in order to hasten the detachment of the slough. Eleven days elapsed, however, before the whole of the slough came away, leaving, to my great gratification, a healthy granulating surface, which under a few applications of a solution of nitrate of silver (ten grains to the ounce) healed rapidly and perfectly. Because of its supposed virtues in such affections, I put my patient under a course of arsenic, which was continued for four or five months.

In conclusion, I am glad to be able to state that Mr. E. has remained in excellent health, never having had the slightest indication of a return of the growth since its removal, now twenty-one months ago.

The Operation for Hare-Lip.

At a meeting of the Atlanta Academy of Medicine, reported in the Atlanta *Medical and Surgical Journal*, January, 1875, Dr. BATTEY exhibited a boy of seven years, upon whom he had operated for *hare-lip* four days ago, by a method, as regards the approximation and securing of the pared surfaces during the process of union, peculiar to himself. The peculiarity of his method consists in the application of a combined splint and compress over the line of proposed union, held in position by silver wires passing deeply through the lip, down to the mucous lining, and outwards through perforations in the splint, upon which they are secured by compressed shot. This arrangement allows of a straight and accurate coaptation of the pared edges, which are drawn firmly up to, and very smoothly moulded by, the leaden splint and compress; by which means the puckering action of the old process by pins and twisted sutures is wholly avoided, and a straight, uniform and very narrow line of cicatrix secured, which is much less observable than that which results from the hare-lip pins.

The splint is useful likewise in stretching the lip downwards, and serving, to a great extent, to prevent the pro-labial notch which so often remains. It likewise covers up the wound, excludes the air, and protects the parts against external sources of injury. The splint, in the case presented, has been removed to-day. In consequence of the broadly rounded corners of the fissure in this case, it was found impracticable to pare the edges so deeply as to cut out entirely the pro-labial notch without sacrificing entirely too much tissue, and rendering the upper lip too narrow. He therefore executed the paring after the manner of Malgaigne, so far as to leave a little flap on either side, which flaps are brought down and united to fill the notch. If, in the case presented, this shall prove to be insufficient, it is proposed, at a future time, to make a slight horizontal incision just above the cutaneous border, by thrusting a narrow bistoury entirely through the lip, and then approximating, by a single silver wire, the two extremities of the incision in such manner as to change the direction of the incised line from horizontal to perpendicular, as illustrated to the Academy upon the bit of soft buckskin. By this means the cicatricial line will be increased in length to nearly the extent of the little incision made in the lip, and *per consequence*, the labial border let down at that point, and the notch effaced. This device, Dr. B. states, is likewise original with himself.

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* This paste is described in the *American Practitioner* for August, 1871, under the title of "Michel's process for removing external tumors," and is made and applied in the following way: Asbestos, as soft and free from grit as possible, is reduced by rubbing between the hands to the finest possible fleecy powder. It is then mixed thoroughly with three times its own weight of strong sulphuric acid ($SO_3\,HO$). A mass is thus formed which may be easily worked with a silver or gold spatula into any size or shape corresponding to the tumor to be destroyed. In the application of the caustic the adjoining healthy parts of the skin are carefully protected by applying a zone of collodion and pads of linen, and the patient is so placed that the surface of the tumor is perfectly level. The saturated acid asbestos is then laid on the surface to the necessary thickness. Rapid destruction of the tissues follows, with, after the first half hour or so, but little pain. An oozing of clear watery fluid appears, which must be carefully sopped up. After twelve or fourteen hours' action the first application is to be removed, and, if necessary, a new portion of smaller size adapted to the sore. After this has been applied for twelve hours the operation is complete, and the healing of the deep excavation alone requires to be attended to.

Operations on the Tongue.

Dr. HUBBARD, in a paper in the *American Journal of Dental Science*, December, 1874, says:—

In most of the books I have been able to find, the operation for the removal of the tongue, or any part of it, has been considered as one of those in which the blessings of anæsthesia could not with safety be afforded to the patient, for the reasons that will be at once apparent, viz: first, the removal by the anæsthetic agent of the voluntary assistance which the patient can render in all operations upon the interior of the mouth, by keeping the jaws and mouth wide open and the tongue steady; and secondly, the supposed danger, in profuse bleeding into the pharynx, of suffocation, by the blood passing into the larynx and trachea. It is very evident that if we cannot in these cases offer to our patient a means of relief, unattended by immediate pain, and that of a most severe character, at least half of the advantages of and inducements to the treatment involving such an operation are thrown away, and the patients will be naturally indisposed to listen to the only promise of relief which can honestly be held out to them. If then we can render by any means the necessary operations painless, we confer, I think, a boon upon humanity not by any means small, to the poor creatures thus afflicted. After some little contriving I made a gag, which I think meets every case, and enables the surgeon to use anæsthetics with some degree of safety. It consists of four teeth plates, which act on both the upper and lower bicuspids by means of a pair of powerful cross levers, placed outside of the cheeks, and opening independently of each other by a screw on each side through a simple hinge joint. Having thus obtained the necessary control of the movements of the patient's lips and jaws, during the insensibility produced by chloroform, we have only to look to those precautions which are usually found most efficacious, such as turning the head down to one side and clearing the throat with the finger. If the knife is to be used, I have found it to be the best plan to pass two stout ligatures through the base of the tongue, by means of a curved needle—these ligatures are held by an assistant. By this means we have the tongue extended to its utmost limits, and by being widely placed they prevent the turning out of sound fleshy substance, which is very apt to be the case when the ordinary vulsellum forcep is used. If the tumor is likely to be very vascular, as may in some measure be divined from its appearance, I deem it prudent to pass a broad ligature across the canine arteries, under the base of the tongue, by means of a curved needle; this controls the hemorrhage until the cut ends of the vessels have been secured. The tumor is next seized by a pair of stout double-toothed lioned forceps, and then a curved, sharp pointed bistoury is used to transfix the tongue close to its base, and to cut first antero-posteriorly, and then laterally across the vessels and nerves, until so much has been cut as will suffice to rapidly clear away the diseased mass. In securing the arteries, much steadiness on the part of the assistant is required. The muscular substance of the tongue is so friable, under the circumstances, that it is readily broken down by too much vigor in drawing the knot; while the depth at which the cut vessels lie from the surface necessitates dexterity in slipping the thread over the forceps, the points of which should be conical and taper quickly to the end. The proper tying of the vessels, and the prompt application of the tincture of the perchloride of iron and chloride of zinc, by a strip of lint tied round a stick, will render the use of the arterial cautery rarely necessary to subdue the hemorrhage. In conclusion to the pathology and cure of the above disease, I will give two cases which I have had during the last year. In February, Albert Stanchfield came to my office for treatment; he had noticed pain and soreness in his tongue, so long as ten years ago. Thinking it was irritated by the molar teeth on that side, he had them extracted four years ago, although they were perfectly sound; twelve months before he noticed, for the first time, that it was rather swollen and hard. The pain becoming worse six weeks before I saw him, he began to emaciate, and the cancer got rapidly larger and more painful, and the ulceration spread further. On examination I found a tumor about the size of a small egg on the left border of the tongue, hollowed out in the middle by an extensive ulceration, covered with an ash-colored slough, and surrounded by fungus raised edges, with a very fetid discharge—frequent hemorrhages had occurred from the middle of the sore. A sub-maxillary lymphatic gland could be felt, enlarged and hard on the same side. There was a copious and distressing flow of saliva, and the poor man suffered excruciating agony both night and day; the effects of loss of sleep and suffering speedily became visible in his rapid emaciation and weak accelerated pulse. On the 9th of February, under chloroform, and aided with the gag I have described, I removed two-thirds of the tongue, cutting clear of the tumor, and afterwards taking away considerable portions which appeared to me to be rather suspicious in feel and appearance. Free hemorrhage occurred from the numerous vessels, which was with difficulty controlled, the substance of the tongue being exceedingly friable, and giving away easily under the ligatures. The chloride of zinc and the perchloride of iron were freely applied, both separately and in combination. A blackened slough was formed all over the sore which, after some days, came off, showing a smooth, healthy and regular healing surface. The sore rapidly healed after a few applications of the solid chloride of zinc, which was employed to smooth down all irregular granulations; and on the 2d of March, the man looking vastly improved in health, free from all pain, and able to eat and speak with more comfort than he had had since the disease appeared, was discharged with the sore almost healed, at his own request, in order to look after his business in the country. The second case I will bring to your notice was a well-marked and advanced specimen of the disease of the tongue under consideration; it was sent to me by a doctor in Auburn—a man aged forty-five, a delicate man, evidently much worn by suffering and interference with the taking of food. On opening his mouth I observed a large solid tumor of the size of a hen's egg, embracing the whole of the left half of the tongue commencing, as in all other cases, opposite the bicuspid and anterior molar teeth. The surface of the tumor was covered with a deep ulceration, with deep ragged edges, and deep, sloughy-looking fissures, and exhaling a very offensive odor and putrid discharge. There was no affection of the glands apparent on careful examinrtion; but the patient complained of deafness and much pain in the ear of the same side, probably from implication of the gustatory and chorda tympani nerves. He had great mechanical difficulty in mastication and deglutition, and has at times lost much blood by hemorrhage, from the ulcerated surface of the tumor; pain, want of food, hemorrhage, had reduced him to a distressing condition. The disease in this case commenced only in December, and pursued a much more rapid course than any other that I have been able to find any record of. It began at first as usual with a decayed tooth. As it was so near the annual meeting of this society, I thought if it were possible I would try and keep the case along, in order that we might get some clinical instructions from it, so I put him on a preliminary course of iodide of potass and tartrate of iron, touching it with solid chloride of zinc twice a day; but as no relief resulted from this treatment, and the poor man was getting gradually thinner and more cachectic from the constant wearing pain day and night, and the interference with his power of masticating food, I dared to delay no longer, and I operated two weeks ago. Much relief followed this operation, which was attended with comparatively little hemorrhage. It is astonishing how rapidly the patient is recovering from this operation; freedom from pain, undisturbed rest at night, improved appetite, and revigorated digestive powers, account for this satisfactory result.

On Papilloma of the Tongue.

At a meeting of the Pathological Society of London, reported in the *Lancet*, January 23, 1875:—

Mr. WAGSTAFFE exhibited two specimens of papillomatous tumor of the tongue, with drawings and microscopical sections. The first was removed from the tongue of a child three years old, in whom a lump had been noticed on the dorsum of the tongue since the child was six months old. It was said to have followed a fall, and had increased in size steadily, varying a little in color. For about a month before the child came under Mr. Wagstaffe's care she had been suffering from difficulty in deglutition, and dyspnœa, especially at night. When seen twelve months ago there was a papillary growth on the dorsum linguæ, commencing at one and a half inches from the tip, and extending backwards for about an inch, projecting a quarter of an inch from the surface. After admission she became worse, and as respiration was embarrassed by the growth it was removed on the 17th of September, 1874. Microscopical examination showed that its structure was that of an ordinary papilloma in its more superficial parts, which were composed of greatly hypertrophied papillæ, containing numerous bands of wavy fibrine, and a good deal of actively proliferating tissue. The deeper parts, however, consisted of a cavernous structure, with numerous cavities containing blood, and appeared to be the remains of a nævoid growth, on which the papilloma had been engrafted. Mr. Wagstaffe called attention to this condition as being one not unfrequently found in a less degree over nævi affecting mucous surfaces, but not to the extent seen in this specimen. The second case was one of interest from its doubtful nature, appearing to be intermediate in structure between epithelioma and papilloma. The patient from whom it was removed was a man 50 years of age, from whom the growth was removed on April 6th, 1874, by the galvanic écraseur, a considerable portion of the tongue being removed with it. It appeared that about twenty-two years ago th patient first observed some white patches on his tongue, of a warty character, whic increased in size, although picked off from time to time, until they formed a sort nodulated cauliflower mass on the surface of the tongue. In 1868 he came und the care of Mr. Jonathan Hutchinson, who made a drawing of the tongue, and garded the growth as probably of syphilitic origin, with possibly the developm of cancer subsequently. Mr. Hutchinson destroyed the growth, but it had s grown to the present size, and formed a large cauliflower mass, resembling a papilloma superficially, and free from ulceration or discharge; in fact, resem a number of warty growths massed together. The submaxillary lymphatic gl on the right side were considerably enlarged, but these receded after the opera and there has been no recurrence of the growth. Examination of the growth sh that it involved the right side of the tongue from the tip for about three inches wards, encroaching on the left half near the front. The rest of the tongue was fissured and indurated. Microscopically, there were found great hypertrop the papillæ, with excessive development of epithelium, in which were num bird's-nests and pus-cells, resembling those found in their interior, together numerous leucocytes, in the papillæ proper. There was no invasion of the epith into the submucous tissue, but a great increase in the nuclei and numerous leuco The growth was therefore essentially a papilloma.

(c) THE EYE AND EAR.

The Limit of Perception of Musical Tones by the Human

The following is an abstract of a paper in the Proceedings of the Am Association for the Advancement of Science, by LAURENCE TURNBULL, M. Philadelphia:—

Before giving the writer's experiments, it will be proper to state the obtained by other observers. The discrepancy, in our opinion, can only be acc for in three ways. First, variations in the sound-conducting portion of the au apparatus; second, defect, original or acquired, in the perceptive portion, and want of cultivation.

Savart fixed the lowest limit of the human ear at eight complete vibra second, by means of a toothed wheel and an associated counter, and the limit at twenty-four thousand vibrations. Helmholtz has fixed the lowest l sixteen vibrations and the highest at thirty-eight thousand. Vierordt highest tone as forty-eight thousand, and Desprets as seventy-three thousand hundred single vibrations in the second. By means of a pendulum swin given distance and striking a steel König rod, a definite degree of inten obtained. With this instrument a series of experiments were made by D Blake, of Boston, Mass., to ascertain the average perceptive power in the norm and this was found to vary considerably with the age; thus at about the twelve and thirteen years a tone of forty thousand nine hundred and sixty tions per second was heard at a distance of thirty-four feet; at the ages o eighteen to twenty years, the same tone was heard only at distances of fron teen to sixteen feet; and at the extreme limit of thirty-four feet, the tone of six thousand, eight hundred and sixty-four vibrations per second only; at th of from twenty eight to thirty years, at the extreme limit of thirty-four fee tones up to thirty-two thousand, seven hundred and sixty-eight vibrations per second were perceptible; while above the age of fifty years the limit of perception at the same distance had still further diminished, and in a greater variety of degree.

In the writer's experiments for the production of the musical tones, the steel rods of Dr. König, of Paris, were employed, made of choice white tempered steel, under the supervision of Dr. Clarence J. Blake, M.D., of Boston, Mass.

The rods are two centimetres in diameter, and in length from one inch to four inches, yielding from twenty thousand to sixty thousand vibrations per second. They are suspended at the nodes by means of fine wire, or strong silk thread; vibration is communicated by a stroke from a steel hammer.

In each experiment the rod is held at a uniform distance from the ear to be tested. Before commencing our experiments on any individual, we determined accurately the condition of his organ of hearing. The testing of the hearing power was, first, ordinary speech, syllables, words or sentences repeated in three grades or intensity of tone, loud, medium or conversational, and whisper; second, the tick of a watch (the intensity of which had been previously determined); third, the tuning fork; fourth, the musical box and piano; fifth, examination of auditory canal and membrana tympani by means of the aural speculum and mirror, with both direct and reflected light, natural and artificial.

Barometric pressure 30° and temperature 65° F. With this arrangement of the rods the following were the results obtained of a series of experiments, which were found to vary with the age and condition of the hearing apparatus of the individual.

Age.	*Distance.*	*No. of Vibrations.*
15	35 feet	40,000
18	" "	40,000
21	" "	35,000
25	" "	30,000
30	" "	25,000
50	" "	25,000
60	" "	20,000

In only one instance, in a trained musical ear, were sixty thousand vibrations in a second heard.

It will be seen by these and numerous experiments which have been made, that the highest musical tone obtained in a normal healthy ear, not specially trained, did not exceed in any instance a fraction over forty thousand vibrations in a second. Education of the ear and brain to the recognition of musical tones, is as necessary as the training of the athlete to run, box, row, bat or lift weights. Most wonderful instances of the power of the trained ear are found on record. There are some drawbacks in these experiments with high tones, for in some recent experiments of a friend with Dr. König while in Paris, he found that he suffered from a painful tinnitus or ringing noise in the ears, after he had reached a limit of forty thousand vibrations per second; and this he found was also the case with Dr. König. To certain individuals' ears these high tones are very painful. In every instance when the individual experimented upon was fifty years of age or over, there was found a change in the auditory, or sound-conducting apparatus, and even in the case of individuals who were from eighteen to thirty years old it was rare to find both ears of the same power.

In other instances, where there was no defect in the ear, there was found a want of musical perception.

On Conjunctivitis Neonatorum.

Dr. E. L. Holmes, in a clinic reported in the Chicago *Medical Journal*, says:—

The symptoms of this disease vary in degree. There is generally at first a slight redness, with an increase of tears. A very rapid and extensive swelling is apt to follow, with an excessive quantity of thick, purulent discharge. The swelling may be so great that it is almost impossible to evert the lids. Occasionally the swollen mucous membrane is found to be covered with a thin pellicle of partially organized lymph. This condition has been termed membranous conjunctivitis. This, however, is far from being diphtheritic inflammation, which is characterized by an exudation of organizable lymph *into* the substance of the conjunctiva, as well as on its surface. This form of diphtheria is most dangerous to the eye, but is fortunately rare in this country.

The treatment of conjunctivitis neonatorum is upon the whole very simple. In all cases it is of the utmost importance to keep the eyes scrupulously clean. To accomplish this requires some skill in turning the lids. Some authors recommend the use of very weak astringent solutions, thrown every hour, or even oftener, from a syringe, between the lids. Unless the nurse has experience, there is danger of injuring the eye with the instrument; there is danger also, without care, that some of the discharge may be thrown into the eyes of those holding the patient. I apprehend the great difficulty you will meet in the thinly settled portions of the country will be the want of skillful nurses to follow your directions, if you trust to wea solutions often applied.

In the early stages of the disease, especially when the symptoms are slight, Alu gr. ij.—v. to the ounce; Zinc Sulph. gr. j.—ij.; Cupri Sulph. gr. j., are perhaps th astringents most commonly used.

But it not unfrequently happens that in spite of this treatment the inflammati assumes a most violent type. The swelling of the conjunctiva, œdemæ of the lid and amount of the discharge, may become enormous. The cornea sometim sloughs in two days, or may remain intact for weeks.

The cases you have seen here have, without exception, been very grave. In thr of them the cornea of one eye, in two the corneæ of both eyes, had already been d stroyed. In three more the corneæ had become more or less ulcerated. In all, t lids were much swollen, and the conjunctiva roughed to an extreme degree.

You have frequently witnessed the method of treating these cases in the clin After exposing the mucous membrane as extensively as possible, I gently soak the pus and moisture with a soft bit of linen, and apply evenly but carefully ov the whole surface a solution of Arg. Nit. ℈ j.—ij. to the ounce of water, with a large camel's hair pencil, *well moistened* but not *dripping* with the solution. The "granulations," without exception, you have seen disappear, and the cor left normally clear, where there were not previously opacities or ulcerations. Y have very often expressed surprise that so strong a solution should produce parently no pain. I can rely on your testimony that, except while the babes, were held and the lids opened, the infants have never cried. They have day a day been carried from the clinic room after the treatment without uttering a s of pain.

In case the hypertrophy of the conjunctiva is excessive to a remarkable degre in two cases, I am in the habit, immediately after the cautery, of excising a fold the whole length of the lid, as near the duplicature as possible. With great swelling the piece excised comprises, in reality, but a minute portion of the true tissue. The local bleeding seems to aid in giving relief. Recent authorities recommend in extreme cases the elongation of the palpebral fissure at the external angle. This little operation relieves tension and causes considerable local depletion.

Treatment of Fistula of the Cornea.

Dr. A. W. CALHOUN says, in the Atlanta *Medical and Surgical Journal*, June, 1875, on this topic:—

Under the belief that the fistula was due to an eversion of the internal lining membrane of the cornea (the membrane of descemet), thus forming a short canal thoroughly lined with epithelium, it has been advised and successfully practiced in some instances, to grasp with a pair of forceps the wall of the canal or fistulous track, and bruise and tear its lining, thus ridding it of its epithelial layer. Then, with a crompress and bandage, the eye is kept quiet, and in some instances good cures have been known to result. This is precisely the same principle as practiced in ordinary fistulous canals in any part of the body, where it is absolutely essential to first denude the inner surface of the canal of its epithelium, before anything like a cure can be looked for.

Touching the fistula with nit. silver, either in stick or solution, has been practiced, but it so often leaves behind a permanent cicatrix that other and less injurious modes of treatment are, as a rule, put into use.

But the surest of all the remedies—surer in closing up the aperture, and surer in warding off the most dreadful of the remote evil consequences of the disease (glaucoma)—is the iridectomy; and, to more fully illustrate its good effect, it will not be amiss to report the following case:

About one year previous to the time of presenting himself for treatment, Mr. C., aged thirty, had had a severe attack of gonorrhœal ophthalmia in his left eye. The disease followed its usual course, resulting in the complete destruction of fully two-thirds of the cornea, leaving only a narrow margin at its periphery. The ulcerated surface gradually healed over, a new-formed tissue taking the place of the original corneal substance, and where the inflammation had entirely disappeared, the whole cornea presented a pearly, opaque appearance, utterly destroying all vision, a mere perception of light still existing. The patient came asking only for relief from the incessant escape of tears over the lower lid, the constant irritable and injected condition of the eye, and a dull, uneasy sensation within the ball. Examining the eye, there was the unnaturally congested condition of the conjunctival blood-vessels; the eye was filled with water as from excessive weeping, and in the centre of the opaque cornea there was a still more opaque ring, encircled by loops of minute vessels having in its centre a very small, black spot, from which was exuding slowly but constantly the fluid from within the diminished or flattened anterior chamber. Rubbing the lid over the opening, and thus removing the water, it could be plainly noticed to again and again gather upon the black spot and drop down over the cornea into the lower conjunctival fold. The nature of the disease was easily recognized, and the patient advised to submit to an operation for its relief, to which he readily assented. Assisted by Drs. Baird, Kendrick, Todd and Ridley, the patient was anæsthetized, and, through an opening made at the upper corneo-sclerotic junction, a pair of forceps was passed down behind the iris until the points were behind the fistula, when as large a piece of the iris was withdrawn and clipped off as possible. This was done several times, each time bringing the instrument in contact with the posterior portion of the fistulous opening, thus irritating and denuding this part of the cornea as much as prudence would allow. The compress bandage was applied and allowed to remain four or five days, the eyes being washed twice daily with simple cold water.

Upon removing the bandage, the fistula was found to be thoroughly closed: no water was oozing out of it, the ball had assumed more of its natural tension, and the deep, dull pain had altogether vanished. The eye has remained in this condition up to this time, now nearly two months, and the irritability also no longer exists.

By means of the iridectomy we accomplish more than the relief of the fistula: we cut short the tendency of the eye to pass over into that glaucomatous condition, which is not a very unfrequent consequence of the disease, and which results in the loss of whatever vision may still exist, and often subjecting the patient to the most excruciating pains.

Cerebral Symptoms in Aural Diseases.

The following cases illustrate certain symptoms arising from aural disease. They are reported in the Boston *Medical and Surgical Journal*, May 6, 1875, by Dr. S. G. Webber:—

John C., aged thirty-seven, had felt dizzy for three or four weeks before presenting himself at the dispensary; he was worse when he looked up suddenly; the dizziness had been steadily increasing; he thought his hearing was as good as usual, but there was evidently a marked diminution of this function, though it was not tested by a watch. He had no tinnitus, no headache, but at times neuralgia on the left side of his head in the temporal region. There had been a slight pain in his right arm for a short time. Both membranes were found opaque and slightly congested at their upper part. He was referred to the Eye and Ear Infirmary, and Dr. C. J. Blake diagnosticated chronic catarrhal inflammation of the middle ear. The man said that after one insufflation he felt better.

Another patient, after taking a bath in the salt water, was dizzy and had noises in his head; there was a slight headache and inability to walk straight; there was also a sense of choking and dyspnœa, with pain in the left side on exertion; at times his eyesight was dim. These symptoms had continued fifteen or sixteen months when he came to the dispensary. His face was bloated; there was no paralysis of the face or tongue. A watch could be heard at a distance of an inch with the right ear, only on contact with the left. Once in a while the patient sighed heavily. Both ears were packed full of wax. Glycerine was dropped in, and two days later an attempt was made to syringe the wax out. A plug about half or three quarters of an inch long was removed from one ear, that in the other could not be started. Two days later the second plug of cerumen was removed. At that visit he expressed himself as much relieved; his hearing was better, he looked brighter and less distressed. He was told to return at the end of a week, but he has not been seen since.

Another patient, after a cough and cold, had headache and was dizzy; the ground seemed to turn round. His gait with his eyes shut was very unsteady; he staggered to the right, somewhat as a patient with locomotor ataxia; he could not stand with his eyes shut and his feet near together. He heard a watch with the left ear at about a foot distance; with the right at about two feet. A large plug of wax was in the left ear. The right membrane was thick, of a dull color, and concave. He was referred to the Eye and Ear Infirmary.

(*d*) ABDOMEN.

The Diagnosis of Abdominal Tumors.

At a meeting of the Cincinnati Medical Society, reported in the Cincinnati *Lancet and Observer,* December, 1874, Dr. N. P. Dandridge exhibited a specimen, and gave a history of the case, illustrating some interesting points in the difficulty of diagnosing abdominal tumors.

Charles Grimes, aged seventy-five; hotel porter; family history not known; entered hospital September 1, 1874, complaining of pulsating tumor in epigastrium, which had been growing for seven months. The tumor is very painful, and over it a distinct bruit can be heard. Died September 10th. Post-mortem examination revealed a tumor in left lobe of liver. The stomach and liver were firmly adherent, and the tumor, softening, had broken into the cavity of the stomach. Projecting into the stomach were softened masses of the growth, which, on microscopic examination, proved to be medullary carcinoma. No disease in other parts of body.

A remarkable feature in this case was the absence of all symptoms of gastric disturbance. Tumor, with pulsation and bruit, seemed to indicate an aneurism. The speaker suggested that if the patient had been examined while on his hands and knees the tumor would have fallen away from the aorta, and there would then have been no pulsation or bruit. This would have been an assistance in diagnosis. Dr. Davis, the attending physician, had rightly surmised the nature of the disease.

Dr. Carson had seen this patient once, and, from a cursory examination, thought the tumor to be an aneurism. Could not make a satisfactory examination, owing to the feeble condition of the patient. Thought it would have been a suitable case, if the condition of the patient had been favorable, for abdominal exploration per rectum, which method, he thought, would have greatly facilitated diagnosis.

Referring to the question of abdominal exploration, he recalled a case which he had reported to the Academy of Medicine, in which it was resorted to satisfactorily, and with but little inconvenience to the patient, a female. He had since seen a male patient with an abdominal aneurism, in which that method of exploration was resorted to, to test the practicability of the procedure. After anæsthetizing the patient, he succeeded, though with more difficulty than in the preceding case, in finding and defining the tumor. Nothing unusual followed the administration of the chlorofosm or the operation. There was no immediate prostration. The next morning the patient was found in a dying condition. Post-mortem examination revealed rupture of tumor, and some effusion of a sero-purulent character in the abdominal cavity, to the right of the tumor, and infiltration down behind the peritoneum. As to the date of occurrence of rupture, the speaker believed it to have occurred prior to the examination of the preceding day, there being no prostration until the next morning.

In this connection he referred to a case reported by Dr. Dandridge, in which death did not occur at the time of rupture of an abdominal aneurism. The patient fainting, plugging of the opening occurred. Forty hours afterward, the plug became detached and a fatal hemorrhage occurred.

Dr. Mussey mentioned a case, which came under his care, of tumor, presenting some of the symptoms of aneurism, as pulsation and bruit, but not fremissement, making diagnosis difficult at first; but fluctuation was eventually detected, and an incision gave exit to a quantity of pus from a hepatic abscess. He found some fatty degeneration and softening around the point of abscess. This patient recovered.

On Irreducible Hernia.

Dr. A. A. O'Neil writes to the *Western Lancet*, March, 1875:—

By the following cases I desire to present an observation on that variety of irreducible hernia which, though not exceedingly common, is by no means rare, viz hernia consisting of intestine and omentum—the omentum complicating the case a preventing the reduction. And even should the intestine be returned to the abdominal cavity, the reduction of the omentum is nearly always attended with gre difficulty, and sometimes is impossible. In the latter cases, of course, constit irreducible hernia, whether femoral or inguinal, the cause of the irreducibility of t rupture is probably due to the constriction at the outer ring and the congestion occasioned in the omentum by the efforts at taxis; the difficulty being greater in persons, from the larger amount of fat deposited in the meshes of the omentum. fact, the omentum found in hernial tumors is almost always more fatty than th found in the abdominal cavity. The turgid circulation in the sac, allows more for the formative process to take place. That sometimes nature may effect a chan and so result in spontaneous reduction, or at least reducibility, I intend to establi by the following cases:

Case I. P—— L——, a young man 23 years of age, light build, affected congenital left oblique inguinal hernia, and having failed to recognize it, it remain unnoticed until he was 18 years of age. He consulted several truss manufacturers who, after ineffectual efforts at reduction, sent him to a surgeon, who also fail He then consulted several surgeons, among the rest myself. I tried all the mea at my disposal, but with like result. The tumor was the size of two closed fis consisting of intestine and omentum. I informed him of my belief that it mus adherent. As this agreed with the opinions of the other gentlemen who had the case, he made no farther attempt to have it reduced, and used a simple suspensory bandage.

Five years afterwards, he was attacked with pneumonia, and after an exhaus sickness finally recovered.

In his period of convalescence he called my attention to the hernia. He was emaciated, and I observed that the tumor had almost entirely disappeared. I examined it carefully, and found that the intestine had completely returned abdominal cavity, and could be felt at the external orifice of the inguinal canal during the efforts of coughing, but came no further, nor did it appear in the scro when he assumed the upright position. I advised a light truss, hoping that agglutination of the walls of the canal might take place, or at least it would the bowel in its proper cavity. The irritation caused rendered it impossible to bear a truss. The omentum was probably attached throughout its entire It had lost its adipose matter, but again began to enlarge, until the tumor size of a hen's egg. I could not detect the slightest appearance of cord or te on this side. He resumed the suspensory bandage, and although eight months since elapsed and no truss been worn, the intestine has not made its eruption the abdominal cavity.

Case II. R. F., 42 years of age, weight 225 pounds, sedentary habits, fell fr barn, sustaining a compound fracture of the tibia. This patient had sustai rupture four years before, occasioned by lifting grain bags; had neglected to a to it for some time, until its proportions began to cause him uneasiness. There been several unsuccessful efforts made at reduction. During the treatment o fracture he mentioned to me the fact. I examined the rupture and found it to be right oblique inguinal hernia, irreducible and consisting of intestine and omentum. I made an unsuccessful attempt at reduction. By the sixth week the patient, who was very muscular, had relaxed considerably, as well as lost flesh. The tumor had diminished in size, and both intestine and omentum were reduced without difficulty. On recovery he obtained a truss and wears it at present.

Case III. M. B., a stout, muscular man, 46 years of age, weighed 215 pounds, twelve years ago ruptured himself lifting heavy weights; did not seek advice until four years ago, when all efforts failed to accomplish reduction. On examination I found right oblique inguinal hernia, consisting of intestine and omentum. Having placed him under the influence of chloroform I succeeded in reducing the intestine, but found it impossible to effect a return of the omentum, which was a doughy mass about the size of a child's head at birth. It would weigh from three and a half to four pounds. Having made several subsequent attempts for the complete reduction, and with like result, I returned the intestine to the abdominal cavity and put on a light truss. Its application caused so much pain and congestion that he had to refrain from the use of the instrument. The intestine would come down without the slightest provocation upon the removal of pressure. I then determined to emulate nature and placed him on low diet with moderate exercise. In six weeks he weighed but a hundred and eighty-two pounds, the tumor being much reduced in size also. I again attempted taxis, and met with perfect success upon the first effort. A truss was applied and easily borne; he subsequently engaged in hard work, but never suffered the slightest inconvenience. This measure is undoubtedly of advantage in all cases of a like character, and where the omentum is not adherent.

Perityphlitic Abscess and its Surgical Treatment.

Dr. J. W. S. Gouley, Surgeon to Bellevue Hospital, New York, writes to the *Virginia Medical Monthly:—*

Mr. ——, æt. 37, had for two years been under my care with a right oblique inguinal hernia, for which he was wearing a truss. At times he could not endure the pressure, and either got a new truss, or had the old one altered. On two occasions the hernia became irreducible, but yielded to rest in the horizontal posture, and to hot fomentations, and in a couple of days he was able to wear his truss and resume his occupation.

In course of conversation, his wife reminded him that, two years before his present illness, he had swallowed one of his teeth, which had been accidentally broken, but he was sure that he had never since experienced any ill consequence, and had even forgotten the fact.

With the exception of the inconvenience caused by his hernia, he was always in excellent health until June, 1873. On the 13th of that month he was, as he thought, again troubled by his hernia, which he could not reduce, and complained at first of some uneasiness, but afterwards of unusual pain in the right inguinal region, and in the iliac fossa of the same side. Hot fomentations this time gave but slight relief, and he was obliged to resort to anodynes to soothe his pain and obtain sleep. Rigor, followed by febrile reaction. Bowels constipated; cathartic. In spite of nutritious diet, tonics, stimulants, etc., he rapidly lost strength and flesh, and remained in that state until early in July, when he ate and slept better, suffered less, and began to gain strength. In the meantime, a swelling which had formed in the right iliac fossa was gradually increasing, but it was still very hard. No fluctuation could be detected. The patient lay on his back, with the right leg drawn up, and supported by a pillow. There was little change in his condition from this until the end of July, when he was able to go out of town. During the first few days of his stay in the country, he felt still better and stronger, and was well enough to walk about in the house. He was, however, soon again obliged to go to bed on account of a new accession of pain. The swelling increased rapidly, filled the whole iliac fossa, and extended even beyond the median line. He then had much febrile reaction, suffered greatly, and finally became quite delirious. In the middle of August the abscess opened spontaneously at about two inches to the right of the median line and one inch and a half above Poupart's ligament. The discharge was fetid, but not profuse, as the opening was small. The physician under whose observation he was did not ascertain whether there was any foreign body in the pus discharged then or afterwards.

From the moment the pent-up pus found issue, the patient began to improve, and in October he was able to come to town, and to call upon me, though the parts were not entirely healed. In December, all discharge ceased, and cicatrization appeared complete. Mr. —— remained well until about the 1st of February, 1874, when he was again attacked with pain in the right iliac region, which swelled as before, but this did not disable him, and he continued to attend to business.

On February 21st, while out of town, he was suddenly seized with excruciating pain at the seat of the swelling, which all that he took failed to relieve. He came home at once, and sent for me on the following day. I found him in great agony, and lying on his back, with the right leg drawn up. He had vomited several times, but the hernia was not down. Morphia was given internally, and hot fomentations were applied at the seat of pain. The next day he suffered less. The tumor had increased considerably, and extended upwards to the level of the umbilicus, and laterally from the iliac crest to about one inch to the left of the median line. Obscure deep fluctuation could be felt. I accordingly advised immediate incision, as for ligation of the external iliac artery.

On February 24th, Dr. Willard Parker saw him in consultation, and agreed with me as to the propriety of the operation, but advised delay.

On February 27th, fluctuation was very distinctly felt, especially at the seat of the old cicatrix. I then proposed to operate forthwith. To this Dr. Parker assented. The patient having been etherized, I made an incision six inches in length parallel to and one inch and a half above Poupart's ligament, cutting down, layer by layer, to the fascia transversalis, and freely laid open the abscess, from which about a pint and a half of very fetid flaky pus escaped. Neither in this nor in the washings of the cavity was there any foreign body; but, in dressing the wound, just as I was about to put in the first pledget of lint, I found at the bottom an oblong fecal concretion about the size of a bean. Afterwards, on cutting it open and carefully examining it, I found in it nothing like a fragment of tooth. The cavity was then filled with lint, to ensure slow union by granulation. The wound was dressed once a day, and healed completely towards the middle of May, when the patient was able to go out. His hernia has not since descended, and has given him no trouble. But, as a precautionary measure, he still wears a truss. He is now (January, 1875) in excellent health.

(*e*) GENITO-URINARY ORGANS.

Dr. Von Ivanchich's Axioms on Lithotrity.

Dr. Von Ivanchich, of Vienna, has published in the *Wien. Med. Zeitung*, January 5, what he calls his axioms. We should rather say to re-state them, as he declares they are identical with propositions which he laid down in 1842, therefore more than thirty years since, when he had performed some two dozen operations. Now he counts 233. They are as follows:—

1. Lithotripsy up to the twelfth year is only exceptionally and very rarely indicated. 2. Sex, as sex, is no contra-indication to it. It may be added that in girls, even under twelve years, the operation is of more frequent performance than in boys. 3. From the twelfth year until old age the chances of a favorable issue after lithotrity are continuously on the increase; so that in old age lithotrity is, as a general rule, to be decidedly preferred to lithotomy. It should be regarded as the usual, and lithotomy as the exceptional precedure. 4. While organic and functional integrity of the sexual and urinary organs favors the successful issue of lithotrity, yet even considerable departures from this need not form an absolute contra-indication. Phymosis is removed by division or circumcision, and strictures of the urethra by appropriate preliminary treatment. Hypertrophy of the prostate, especially of its middle lobe, often presents a fatal impediment, but yet this frequently is not insurmountable. The spontaneous discharge of the fragments prevented by this, or by paralysis of the bladder, may be compensated for by their artificial extraction. Vesical catarrh, even when this is intense, and whatever the state of the reaction of the urine, considered in itself, interferes little with lithotripsy. On the other hand, increased sensibility of the urinary passages exerts a powerful influence. The employment of anæsthetics, however, has caused increased sensibility, unaccompanied by other complication, to cease to be a contra-indication to this operation. Organic diseases of the urinary organs, when they can be diagnosed, forbid its performance, as they also render the issue of lithotomy problematical. 5. Lithotrity is favorable for one or more small stones up to the size of a walnut, especially if not very hard, the chemical composition not much influencing the indication, even when this is oxalate of lime. But stones even as large as an egg, and that when they are very hard, are not always refractory to lithotripsy. No. 20 in the list of cases relates to one in which two uric acid calculi, weighing together eight Loth (thirty-two drachms), were successfully removed in fifteen sittings. Nevertheless, the large size of the stone, especially when combined with other complications, often contra-indicates the operation. Such cases will always raise critical problems, the solution of which will make a demand on the penetration of the surgeon. Stones that are encysted in diverticula of the bladder, or that are impacted in its neck and cannot be readily forced back again, must be removed by incision, as must all calculi that have voluminous non-friable nuclei. 6. Finally, it may be especially declared that invariable determinate indications and contra-indications for lithotrity cannot be laid down on paper; so that in doubtful cases it is only the practical tact of the surgeon that can decide whether any or what operation, and whether mere palliative treatment should be resorted to. It is often the issue of the operation that can alone decide whether the indication has been skillfully seized.

Treatment of Acute Orchitis.

The following case under the care of Dr. SHINKWIN is reported in the *Irish Hospital Gazette*, February 15:—

William G——, aged thirty, a strong, healthy-looking man, was admitted into the Infirmary on Saturday, 24th October. He stated that immediately after recovering from an attack of gonorrhœa, he noticed the testicle becoming enlarged, and that, in the course of a few days, it had increased so much in size, and brought on such great pain and difficulty in locomotion, as to necessitate his lying up and sending for a doctor. Leeches were applied, which afforded temporary relief; but eventually the symptoms became greatly aggravated, and he was recommended to apply for admission into hospital.

He presented well-marked signs of acute orchitis. The gland was flattened and oval in form; pressure caused intense pain, which was felt in the loins, hip and down along the thighs, and the scrotum was red and swollen.

There was also some effusion into the tunica vaginalis; but little constitutional disturbance existed, owing probably to the excellent health the patient always enjoyed.

Brisk purgatives were ordered on Sunday, and next day a blister was ordered to be applied along the left cord, and the following mixture applied:—

℞. Sulphatis quiniæ,	grs. xvj.	
Acid. sulph. dil.,	℥ss.	
Syr. aurantii,	℥j.	
Aquæ, ad.,	℥viij.	
Solve et adde;		
Potass., iod.,	ʒij.	M.
Ft. Mist. St., ℥j. ter die.		

When all the inflammatory symptoms had subsided, compression by means of strong adhesive plaster was resorted to in order to get rid of the effusion which still remained.

Two days later the testicle had reduced so much in size that the strapping had to be removed; and after the second strapping such improvement was effected that it was not considered necessary to repeat the process.

In three weeks from the date of admission all traces of the disease had disappeared.

Remarks.—With reference to the treatment of this case, Dr. Shinkwin stated that it was such as he was invariably in the habit of adopting whenever a case of the kind came under his notice; and that he had never yet met with a case of acute orchitis which did not rapidly yield to purgatives, quinine and iodide of potash, a blister along the cord, and strapping the testicle.

There was one thing, however, he wished to caution the class against, and that was the time or stage, or kind of inflammation in which strapping was applicable.

Strapping in the early course of the disease Dr. Shinkwin disapproved of, believing that it is not in acute inflammation, but in the passive state, that strapping is most beneficial and chiefly indicated. It is, in short, only after all the acute symptoms have been subdued by active measures that it can realize the expectations of the surgeon. When the high inflammatory action has passed away, strapping greatly facilitates the cure, affording relief from pain, causing the rapid subsidence of the swelling, and removing all effused matter.

The Belladonna Treatment in Abscess of the Prostate.

The case subjoined is contributed to the New Orleans *Medical and Surgical Journal*, January 1875, by Dr. J. DELL' ORTO:—

A. C., a stout, strong man of bilious-sanguine constitution, aged 45; had been following his occupation of fishing at Lake Pontchartrain for several weeks in the months of July and August, 1871, and had been much exposed to the cool, damp air of the lake shore, where he had slept several nights consecutively. He had enjoyed fair health all his life, until the 1st of September, when he began to have chills and fever. On the 3d of September he came to town, and at 7 p. m. of the same day I saw him for the first time. He had had a strong shaking chill a few hours before, and had a very high fever, complicated with neuralgic pains all over his body; tongue very much coated. I made diagnosis of intermittent fever. I prescribed a warm foot bath and a bottle of citrate of magnesia.

September 4th—*Morning Visit.* No fever; he had been freely purged by the lemonade. In the evening fever returned, with chill at the same hour. Administered 24 grains of quinine in twelve doses.

September 5th—Fever disappeared, but the neuralgic pains continue, especially in the face.

September 6th—Passed a good night. He is not quite relieved of the neuralgia, which is fixed on the left side of the face. I applied an ointment made with the extract of belladonna and opium.

September 7th—Neuralgia has disappeared completely, and I believe he will soon be convalescent. In the evening he complains of a light pain at the hypogastric region, with a little burning in voiding urine. I make diagnosis of irritation of the neck of the bladder, and neuralgia of the same produced by rheumatic cause. No fever. Prescribed general warm bath, camphor pommade, with belladonna, flax seed poultice, and emollient enemata.

September 8th—He is not better: he is costive, and complains of something heavy about the anus whenever he wants to evacuate. Ordered two ounces of castor oil, and continued the same treatment.

September 9th—He passed a very restless night; great difficulty and pain in making water. There are some symptoms of urethritis, as burning sensation all along the urethra, and running of a gonorrhœa-like matter (he never had any venereal disease). A little fever in the evening. I introduce the catheter into the bladder. No difficulty in the introduction of the catheter; no strictures in the urethra. Continue the same treatment, to which I added injections of infusion of belladonna into the urethra.

September 10th—He is worse. Pain at the anal region increasing. High fever. I suspect the inflammation of the prostate, and by introducing my finger in the rectum, I feel the gland very much swollen and hard. I applied twelve leeches over the perineum. Since this date I introduce the catheter twice a day.

September 11th—Leeches drew plenty of blood, but without any improvement; the inflammation is progressing rapidly, and diffusing itself over the wall, or muscular membrane, of the bladder, and peritoneum; abdomen is swelling; great suffering, and tenesmus in defecation, which causes distressful pains and spasm. I fear peritonitis.

September 12th—Applied a dozen of leeches at the hypogastrium, and administered the following cathartic pills: blue mass and calomel aa gr. x., extract hyosciam.

gr. v., for three pills; frictions of mercurial ointment over the abdomen several times a day.

September 13th—Pills did not act. Ordered a bottle of citrate of magnesia, after which he had several good passages, and felt easier. Prescribed tincture of belladonna, 6 drops every three hours. In the evening the fever had disappeared, and the abdomen was less swollen. He looks better. Peritonitis is cut short, and everything leads me to believe that he will pass a good night.

September 14th—Passed a very restless night; slept none. At twelve o'clock (midnight) fever again with chills. Called in consultation Dr. Coursault, who advised to give some more quinine, 30 grains, with 8 grains of hyosciamus, for 8 pills, to be taken one every two hours, and continue the same treatment of general baths, mercurial friction, belladonna drops, etc. The urine drawn by the catheter is always natural, and very little reddish.

September 15th—Getting worse; fever continues; pulse over 100; abdomen more swollen; no sleep, no rest; strains very much at stools, with unbearable pains. In the evening applied another dozen of leeches at the hypogastrium. In the evening, at 9 o'clock, I injected in the rectum 10 drops of tincture of belladonna, with 15 drops of laudanum and paregoric each.

September 16th—The enema was kept, and produced a good sleep of three hours. Fever disappeared; abdomen softer; bowels freely open; but the difficulty in making water, and the strainings at stools are so strong that the nervous system is shaken. Pulse is falling; tongue is getting very dry; there is a kind of bronchitis, as in typhoid fever.

September 17th, 18th, 19th, 20th—Nothing of importance during these four days; no improvement, but the pulse kept good and strong. Continued the same treatment with belladonna drops, mercurial ointment, etc.

September 21st—Worse than ever. Pains are so intense that he prefers to die. Pulse is getting weaker. I examined the prostate, and felt a little fluctuation. I proposed to perforate it with a *trocar*. Dr. Coursault prefers to wait one or two days longer, but we agree to apply another dozen of leeches to the perineum, and, in order to relieve the vital force, and present an adynamic condition of the system, we prescribed at the same time carbonate of ammonia, grs xx., infus. digital., ℥jv., syrup flor. aurant., ℥ij, to be taken by one tablespoonful every two hours; and this mixture was continued for several days. In the evening he feels a little better. Dr. Coursault suggests to give him small enemata of about one ounce, made with a strong infusion of belladonna leaves, laudanum and paregoric, of each a tablespoonful, and half a teaspoonful of tannin, these enemata to be repeated every two hours, in order to produce narcotism, and act on the tumor as astringent. There is total retention of urine. I introduced the gum elastic catheter, and kept it in the bladder for forty-eight hours.

September 22d—Five enemata were administered, which were retained, and produced sleep all evening and night. In the morning, at 3 o'clock, the abscess opened itself into the rectum, and four tablespoonfuls of a purulent, thick, milk-like matter was brought out.

September 23d—Since this date he was greatly relieved. Pulse is good; skin is moist, and he is all the day under the influence of narcotics. Withdrew the catheter; ceased all medication, with the exception of carbonate of ammonia, and ordered good nourishment.

September 24th, 25th, 26th—Improving rapidly. Pus from the rectum comes out freely, plentifully, and of a good nature.

September 27th—He is convalescent; the purulent discharge has ceased to flow, and the prostate is in its natural state. He has good appetite. I ordered enemata of cold water every morning for ten or twelve days, after which lapse of time he was perfecty recovered.

The facts which I think worthy of notice in this case are the following:

1st. It was an *hydiopathic* prostatitis, produced by a rheumatic and malarial cause.

2d. The happy result was due a great deal to the patient's strong, sanguine and healthy constitution, which allowed us to use an energetic antiphlogistic treatment, with repeated bleeding by leeches, and thus was prevented two or three times the diffusion of the inflammation to the peritoneum.

3d. The benefit obtained by the belladonna, which, though administered in large doses, and for long time, was tolerated, without ever having produced any physiological or poisonous effect.

A Case of Tapping the Bladder above the Pubes.

Dr. William H. Mixon reports the annexed illustration of this operation to the *American Practitioner*, February, 1875:—

I was called, June 14, 1874, to see Mr. M., aged sixty-eight years, an otherwise healthy man, suffering from retention of urine, supposed to be due to stone. He had passed no water since eight o'clock p. m. the previous day. He was distressed by violent, frequent, and excessively painful efforts at micturition. I failed in my efforts to pass a catheter, and supposing there might be some spasmodic difficulty in the urethra, I gave him, without avail, several large doses of opium, a pill or two of belladonna, used the hot hip-bath, and finally had him to inhale chloroform. Digital examination through the rectum revealed considerable enlargement and some tenderness of the prostate. Meanwhile several hours had elapsed, no water had been drawn, and the patient's sufferings were becoming more and more distressing. I feared that unless relief was soon obtained all the long train of evils due to prolonged over-distension would occur. Dr. Geo. W. Sherman, living in the neighborhood, was called in consultation, and we agreed to continue for a few hours the means already used, and to endeavor to give anodynes by the rectum. The bowel, however, refused to tolerate even the smallest injection. The patient's efforts to urinate now became so violent that he passed his fæces involuntarily. His pulse began to grow frequent, but he had neither rigors nor fever. It was now decided to puncture the bladder. The enlarged condition of the prostate seemed to preclude the operation being done through the rectum, even had we possessed a suitable canula and trocar; but having none, we were confined to the high operation; and having no other instrument than an ordinary bistoury and a catheter at hand, and none within easy reach, I proceeded, after the patient had been fully anæsthetized, and twenty hours after he had last passed even a drop of water, to open the bladder in the hypogastric region. I experienced no difficulty, such was the enormous distension of the bladder, in effecting the opening, and on withdrawing my bistoury instantaneously inserting a No. 8 female catheter, through which the urine at once escaped, to the great relief of the patient, who soon fell asleep. To guard, if possible, against the occurrence of peritonitis, I continued the opium in grain doses sufficiently often to secure rest, applied cloths wet with cold water over the abdomen, and gave tincture of digitalis freely. I remained with the patient during the night, which was passed in comparative comfort. The following morning he awoke in good spirits, though feverish and thirsty; temperature 100°; pulse 100, full, soft, and regular; but slight tenderness over the hypogastrium, none over the abdomen generally. The urine still ran through the catheter. I was now called away, and left the case in charge of Dr. Sherman, not seeing it again until the lapse of five days.

Small quantities of water had now begun to pass by the urethra. No symptoms had occurred to make any special medication necessary. The patient was eating, sleeping, and feeling well. Hoping to be able to get rid of the catheter, I now attempted to pass a gum catheter by the urethra, but failed. When this was withdrawn, however, considerable quantities of muco-purulent fluid followed. I touched the posterior portion of the urethra a few times with the nitrate of silver carried back on a porte caustic. A few days after, and eleven from the date of the operation, the urine resumed its natural course sufficiently to admit of removal of the catheter; but an attack of dysentery, which it required a few days to check, made it, in our opinion, inexpedient to do so. After a little further delay, making in all fifteen days from the time the catheter was introduced by the hypogastric opening, and where it had remained without exciting any appreciable irritation, the instrument was withdrawn, and the edges of the little wound at once approximated by adhesive strips. Union soon occurred, and the patient, in spite of our injunctions to be quiet, was a very short time after out squirrel-hunting. His health is at this writing perfect, and his urethra, to put it in his own words, "is in fine working order."

On Subacute Inflammation of the Bladder.

The Virginia *Medical Monthly*, February, 1875, contains an article on this subject by Dr. John Mettauer. He writes:—

It will not be necessary to indulge in speculations in regard to the pathological conditions of the bladder in this disease, only so far as may be necessary to determine the grade of morbid action demanding the caustic treatment; and the writer will state, briefly, that the symptoms, both local and general, seem clearly to indicate the existence of a disease based in subacute inflammation, or neuro-phlogosis, differing from neuralgia by reason of the contiguous structures having become slightly inflamed, and their nutritive actions somewhat perverted. The disease, generally, is unattended with acute inflammation, and when a febrile state accompanies it the fever is of the irritative description. If thickening or ulceration occur, they are due to protracted nervous ataxia which, sooner or later, perverts the nutritive exercises, but not to the extent of inducing acute inflammation. The irritation which induces the disease is often, nay ,generally, sympathetic; and when so, uterine and rectal troubles are generally the parent diseases. The writer has rarely treated uterine affections or protacted examples of fissure of the rectum with females without finding it necessary to employ caustic injections to the bladder before dismissing the patient. In some examples the parent disease is so slight as to render it questionable whether the vesical affection could have been induced by it; and frequently such cases, apparently slight, prove rebellious and difficult of treatment. Not unfrequently much difficulty is experienced in these cases, as well as those of more violent character, in deciding which is the parent disease; and in such cases the safest plan is to treat both affections, but not at the same time.

Preliminary to the use of the vesical injections, the writer has, in most cases, premised a course of preparatory treatment, consisting of demulcent drinks, aperients if there is constipation, restrictions in diet, and exercise; and, if an oxaluric diathesis is suspected, the nitro-muriatic acid mixture. In some urgent cases, however, he has departed from this rule and commenced the vesical injections at once. A remarkable example of this description came under treatment, in which the injection was used a few hours after the lady arrived in the neigborhood of the writer. The patient had suffered intensely for nearly a year. The first injection, although imperfectly administered late in the evening, was followed by a good night's rest, and only three applications were required to effect a cure.

The injections employed by the writer consisted of pure nitrate of silver, dissolved in rain or spring water, in the proportion of four to ten grains of the former to one ounce of the latter, and from one to three ounces to be used at a time, retained not more than ten minutes. Before the injection is introduced, the bladder should be carefully washed out with tepid water; and to insure the complete application of the caustic solution to the entire surface of the mucous lining of the vesical cavity, the patient should rotate her body from side to side, and before discharging the injection should sit up a few moments, so as to allow the cervix to be well impressed, where, in a majority of cases, the chief irritation exists. In most cases, the injection causes considerable pain, made up of burning sensations, straining, and almost constant desire to micturate. The pain, however, is generally of short duration, more particularly if the vesical disease is slight; yet, in some cases, it continues nearly throughout the day, and now and then for several days, especially in the more violent examples of the vesical disease. The injections may be repeated after intervals of 7 to 12 or 15 days, according to circumstances. It will be improper to repeat them until the bladder has recovered completely from a previous operation. In a majority of cases, from three to five injections will be required. Now and then a single one will effect a cure, while occasionally a great many will be demanded. As the treatment progresses the intervals may be lengthened; and as the disease ameliorates the injections become less painful, even if used of greater strength. The lessening of the pain of the injections, as well as the moderation of the original symptoms of the cystorrhœa, together with the improvement of the general health, both corporeal and mental, are to determine as to the necessity of continuing the treatment. The writer, after several injections had been administered, and marked amelioration of the symptoms was discoverable, generally suspended the topical treatment for a few weeks, using during the time such other remedies as the cases may require; and, if the bladder is still disquieted, to resume the injections; he, however, has rarely been required to resume them.

In some cases, the nitrate of copper seems to meet the indications better than the lunar caustic, and the writer thinks such examples are generally to be met with in scrofulous subjects. These examples are often attended with ulceration of the mucous lining of the bladder, thickening of its walls, purulent discharge, and hemorrhage. This nitrate may be used in solution and of the same strength of the nitrate of silver, as well as after like intervals.

The constitutional treatment of this affection, in a majority of cases, will only be required to guard against the possibility of inflammation, and to repair the general health if it has materially deteriorated. In most cases, keeping the bowels in an easy, soluble state will meet the indications fully. If debility exists, suitable tonics will be required; and if an oxaluric diathesis is suspected, the nitro-muriatic acid mixture should by all means be used. Throughout the treatment, both topical and general, demulcent drinks ought to be employed. Narcotics will sometimes be required when the past operation pain is violent, or when patients are restless of nights. And, generally, the diet should be restricted, and condiments avoided known to act through the bladder.

The instruments necessary for injecting the bladder are a gum catheter of proper size, and a glass syringe or gum elastic bag. In my first operations I employed a female catheter and a small bladder, and found them to answer very well. I now use a gum catheter and a small vulcanized gum bag. The bladder just referred to recalls vividly to my mind two operations I had to perform when a very young practitioner—one paracentesis abdominis, the other catheterism in a dangerous case of retention of urine. The ascites was so alarming as to require an immediate operation. I was a considerable distance from home; had no catheter with me; delay was out of the question, as it would certainly have led to the death of the man, so I tapped the man with my thumb lancet and a reed pipe-stem, and saved his life. The case of retention was equally threatening, and, being environed with similar difficulties, I drew the water off with a moderately long pipe-stem of reed, curved somewhat by heating, and then bending it, also saved the poor sufferer's life. During these early professional times, country practitioners often had to resort to make-shift expedients, and frequently of very rude character, as in the cases just referred to. A practitioner of medicine, who chanced to be present when the operation for ascite was performed with the pipe-stem, became faint, and would certainly have swoone if he had not been carried out of the room into fresh air.

The comparatively mild treatment of cystorrhœa, which the writer has briefl described in this paper, has succeeded in affording relief in a vast number of case many of them attended with great suffering, and generally after only a short tim Indeed, it may be stated that the failures referred to in the early part of this pape three in number, are the only ones.

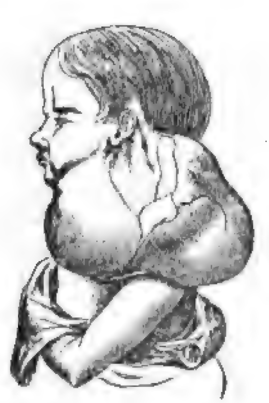
On Urethral Stricture.

At a meeting of the Medical Society of London, reported in the *Lancet*, Januar 9, 1875, Mr. Teevan read a paper entitled a Review of the Modern Methods o Treating Stricture. He commenced by making some preliminary observations o the pathology, diagnosis, and prognosis of the complaint, and then stated that all the methods of treating stricture might be ranged under the following heads, and that he had tried all except electrolysis: 1. The expectant plan, which confined a patient to bed, trusting that the symptoms would disappear by rest, warmth, and purging. The method was not in favor on account of the sacrifice it entailed on the patient, and ought to be reserved for cases of impassable stricture, to enable the surgeon to introduce an instrument. It often completely failed. 2. Continuous dilatation. Most useful where gradual dilatation had failed, or when the patient wanted to get well in a few days. In some cases the treatment could not be carried out on account of the irritation it set up. 3. Gradual dilatation. This treatment was most in favor with the majority of surgeons, for it allowed patients to pursue their avocations without any interruption, and it was devoid of the slightest risk. There were certain drawbacks to the treatment, chiefly caused by the use of an imperfect gauge and instruments. If the French gauge and soft French instruments were employed, failures would be rare. 4. Caustics. Most useful in certain cases of impassable stricture, to open up the mouth of the stricture and enable the surgeon to introduce an instrument. The treatment did not deserve the wholesale condemnation passed upon it. 5. Electrolysis. The facts were too few to enable a correct judgment to be formed. The treatment was still *sub judice.* It deserved a fair trial, however. 6. The plan of sliding one instrument over another. Useful in cases where there was a false passage, or where the difficulty of treating the case arose not so much from the tightness of the stricture as the tortuosity of the urethra. 7. Forcible dilatation, which included the so-called "immediate treatment," or "dilatation forcée," more properly termed "divulsion" by Voillemier and the American surgeons. This treatment was rapidly falling into disuse. In France the operation has been almost entirely abandoned, and in Great Britain and America surgeons were constantly relinquishing the practice. In Germany the operation had never been popular. The objections to the treatment were, that it was, so far as could be ascertained, the most fatal of all operations for stricture, and that the relapses were speedy and aggravated. In London alone a large number of deaths had occurred after the operation which had never been published. He always had under his care a number of patients whose strictures had been split up by other surgeons, and whose relapses had often taken place in spite of most careful attention. 8. The various methods of Urethrotomy. In France internal urethrotomy was the stock operation for stricture. It was in harmony with all the teachings of surgical pathology and experience, and was making rapid strides in all parts of the world. In this country and America it was supplanting forcible dilatation. There was but little risk attached to the operation, and its results seemed more permanent than those following other operations. He looked upon "subcutaneous urethrotomy" as the operation of the future, and preferred it in all cases where it was applicable. External urethrotomy ought to be reserved for cases of horny or resilient stricture, complicated with perineal abscess or fistula. The principles of treating stricture had been correctly summed up upwards of thirty years ago by M. Auguste Mercier, and might be thus briefly translated: "Dilate where you can, cut where you cannot."

Surgical Treatment of Hydrocele.

In a clinical lecture reported in the *Medical Times* for March 13, 1875, by Dr. R. J. Levis, the subjoined case is given:—

A few days after this child, now about three years of age, was born, there was observed a slight lump on the side of the neck, which has gradually increased in volume until it is at this time of the size of the child's head. The tumor extends from the ear to the clavicle, and from the chin outwards, hanging over the shoulder. It shows no signs of inflammation, is soft to the touch, and at various points presents fluctuation upon palpation. Some months ago it was tapped, and a considerable amount of fluid drawn off, after which, the parents state, a seton was introduced; but the treatment was not permanently successful, and the tumor has continued to increase in size.



The diagnosis of cystic tumor is easily made in this case, from the general characteistics of the swelling, and from the fact that there was serous fluid drawn off when the tumor was punctured.

To these cysts of the neck the terms hydrocele and hygroma have been applied, but they do not differ in nature from the serous cysts found in other parts of the body. They are more commonly situated in the glan lar tissues, such as the ovary and mamma, and associated with adenoid tum in the cervical region; but in this instance the cyst is developed in the cellular tis of the neck.

They may be, and perhaps generally are, congenital, and contain serum, or se mixed with blood; sometimes, however, the contents are thick and viscid, occasionally solid matters have been found within them. In this case the cy multilocular, as can be determined by the lobulated appearance of the surface. by the fact that fluctuation is felt in sections only, and not in continuity through different diameters of the tumor.

The radical treatment of these cases of large hydrocele of the neck is difficul excision is frequently impossible, since prolongations of the cyst extend de among the important cervical structures, surrounding the vessels and nerves in a manner as to render extirpation of the tumor absolutely impracticable; and the other hand, the injection of solutions into such large sacs, to induce obliter inflammation, is attended with danger on account of the resulting constitutiona turbance.

In this case the tumor is so large that it would not be safe to attempt to di it out, for it undoubtedly has deep attachments and is intimately blended with subjacent structures. Neither would it be advisable to lay open the sac and a it to suppurate, nor, on the other hand, to inject into it tincture of iodine or car acid, for there would be an enormous surface which might perhaps absorb the or the medicinal agent, and thus cause the supervention of toxic symptoms.

When the child first came for treatment, there was debility and a general of tone, which demanded the use of tonic remedies before anything operative undertaken. Now the various cysts shall be punctured, and the contents evac by thrusting a bistoury into the tumor at three points, from which the ser seen to escape; there is also much solid matter and material of gelatinous co ence, forming a portion of the tumor.

In order to have as small a suppurating surface as possible, a portion of th shall be removed by the écraseur. Since, however, the tumor is not lobu pedunculated, it will be necessary to devise a means to keep the chain arou base; hence these long acupressure needles are passed through the mass, tr ing it in various directions, and then the chain is placed behind these needle drawn tightly so as to constrict the portion to be removed. By drawing chain, this portion, which is collapsed to the size of an orange, is gradually c off from the underlying structures, without the hemorrhage which would ce occur if the knife were used. The great force applied has, however, brok chain of the écraseur when the parts are almost separated, and the operatio be concluded by using the knife, since there will not be much hemorrhage no the constriction which has been exerted before the chain separated.

The object in removing this portion of the cyst is to obtain a small sur the occurrence of suppuration, and thus to lessen the danger of excessive c tional disturbance. The wound is dressed with carbolized oil, and the little given a dose of chloral and morphia to allay pain and induce sleep.

[Four days after the operation, a colliquative diarrhœa, to which the pat been liable, occurred, which could not be controlled, and the child died from tion, while the appearance of the wound was quite favorable.]

VII. DISEASES OF THE SKIN.

A New Classification of Skin Diseases.

Dr. H. G. Piffard, in the *Archives of Dermatology*, April, 1875, writes as follows:—The writer, early impressed with the desirability of system in the *envisage* of cutaneous as well as of other affections, and after a careful consideration of the merits and demerits of the prevalent methods, is forced to the conclusion that the French idea, that of natural or clinical classification, offers the greatest advantages, whether considered from the standpoint of the student or the teacher. Believing, then, that this method affords the greatest assistance, whether the object be to acquire or to convey a comprehensive knowledge of cutaneous affections, and desiring to facilitate their study, I venture to offer for your consideration a new Clinical Classification.

This classification I believe to be correct in principle; but in matters of detail it doubtless leaves room for improvement, and I hope that a free and candid discussion of these latter points may result in desirable modifications of the proposed plan.

In this view I have arranged the various cutaneous affections in five principal groups:

I. General Diathetic Affections.
II. General Non-Diathetic Affections.
III. Reflex Affections.
IV. Local Affections.
V. Affections of Uncertain Nature.

General diathetic affections.—This class embraces the cutaneous affections which are the outward manifestations of a general morbid constitutional condition or diathesis, which diathesis may be hereditary or acquired, and lasts indefinitely and often for life.

General non-diathetic affections are those which occur during or in consequence of a general morbid condition, not hereditary, and of temporary duration.

Reflex affections include those which depend directly upon nerve lesion, or else occur through the medium of reflex action as secondary to pre-existing disease or derangement of other organs.

Local affections embrace those which have no direct connection with abnormal conditions of the blood or viscera.

Diseases of uncertain nature embrace all the affections which our present knowledge will not permit of placing in the other classes.

With these preliminary remarks I present the detailed arrangement which I have temporarily adopted.

In the class of diathetic affections I place the following:

Syphilides.
Varieties.—Erythematous.
Papular.
Tubercular.
Vesicular.
Bullous.
Pustular.
Squamous.

Scrofulides.
Varieties.—Erythematous.
Corneous
Pustular.
Tubercular.
Phlegmonous.

Rheumides.
Varieties.—Eczema.
Psoriasis.
Pityriasis.

Leprosy.
Varieties.—Tubercular.
Anæsthetic.

Ichthyosis.

With reference to the foregoing, it is proper that I should briefly refer to some of the points which may seem peculiar. None will deny the diathetic nature of the syphilides, and but few, I believe, will contest the constitutional nature of the scrofulides; but many, and especially those imbued with the doctrines of the Vienna school, will question the propriety of associating eczema, psoriasis and pityriasis under the common title which I have given them.

The Rheumides, it will be seen, are the affections which the French dermatologists include under the terms Dartres or Herpetides. Accepting the arguments which have been offered in support of the reality of this Dartrous, Herpetic, or, as I prefer to term it, Rheumic diathesis, I shall not at present add to them, other than to call attention to some of the characters common to the affections embraced by it.

Common characters of the Rheumides.—They are not contagious; they are frequently general, not, however, by simultaneous invasion of the surface, but by spreading from different foci: they are frequently symmetrical; they are usually chronic; their natural duration is indefinite; they are obstinate, and do not readily yield to treatment; they are frequently observed in different members of the same family; they are frequently observed in different forms, in different generations of a family; two or more forms may be present at the same time, or may appear successively; relapses are frequent; they sometimes alternate with affections of other organs, especially of the pulmonary and gastric mucous membranes and of the joints; they itch; the lesions are always superficial; they never leave cicatrices; they are more or less amenable to certain definite methods of treatment, which have little, if any, effect upon other cutaneous affections.

The special names, Rheumides and Rheumic diathesis, have been selected in consequence of their etymological signification, which implies the idea of exudation;* secondly, because the blood condition underlying this diathesis I believe to be similar to, if not identical with, that concerned in the production of rheumatism and gout; and thirdly, because the vulgar name, Salt Rheum, so commonly used in this country, implies the same idea. I have not adopted the French name Dartre, as it would be utterly without signification to the English or American mind, and the term *Herpetic* is used by us in a sense entirely different from that in which it is employed in France.

Among the NON-DIATHETIC AFFECTIONS, I include

Eruptive fevers.
Scorbutus.
Erysipelas.
Glanders.

The REFEX AFFECTIONS embrace

Acne.
Gutta rosea.
Urticaria.
Zoster.
Herpes labialis, preputialis, etc.
Pemphigus (?).
Xanthoma (?).
Chloasmata (*some*).
Dermatalgia.

I have placed Acne and Gutta rosea in this group in consequence of the belief that in the majority of cases, if not in all, they are dependent upon pre-existing disease or derangement of the digestive or sexual apparatus.

The position of Urticaria, Zoster, Herpes labialis, etc., will not be contested.

Pemphigus I have marked doubtful, as although it is the fashion at present to include it among the neuroses, the evidence in support of this idea is far from convincing.

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* Hebra includes these affections in his class "Exsudate."

Xanthoma is also marked doubtful, but is placed here in consequence of its frequent known association with hepatic disease.

The "some" cases of chloasma include the "maculæ gravidarum," etc., dependent upon uterine trouble.

The LOCAL AFFECTIONS embrace

A. Parasitic.

Scabies.
Phtheiriasis.
Favus.
Trychophytosis.
Pityriasis versicolor.
Alopecia areata (?).
Impetigo contagiosa (?).

B. Non-Parasitic.

Ephelis, Fuscedo.
Effects of heat and cold.
Effects of chemicals.
Effects of poisonous plants.
Effects of poisonous insects.
Clavus, Callus.
Intertrigo.
Nævus.
Sudamina.
Furuncles and Anthrax.
Verrucae.

The position of the first five affections in this group will not be contested.

Alopecia Areata, in spite of the opinions of Bazin, Fox and others, and the recent investigations of Malassez,[*] must, I think, be still considered as of doubtful parasitic nature.

I have also marked Impetigo contagiosa doubtful. The phenomena exhibited by this affection, and my own microscopical investigations,[†] incline me to believe in its parasitic nature; but I do not consider this to be absolutely proven.

The fifth and last group embraces the

AFFECTIONS OF UNCERTAIN NATURE.

Albinismus.
Nigrismus.
Vitiligo.
Keloid.
Lichen ruber and planus.
Molluscum.
Morphœa.
Prurigo (*of Hebra*).
Rhinoscleroma.
Scleroderma.
Scleriasis.
Strophulus.
Erythema.
Pellagra.
Elephantiasis arabum.

The list of affections in this group is long; but it is to be hoped that the rapid advances in dermatology, which are now being made, will permit of the transference of some of them to other classes.

On the Employment of Waxed Tissue Paper as a Local Dressing in Skin Affections.

Dr. DYCE DUCKWORTH, Fellow of the Royal College of Physicians, London, Assistant Physician to St. Bartholomew's Hospital, and Demonstrator of Skin Diseases, writes to the *Archives of Dermatology*, January, 1875:—

In this communication I propose to call attention to a plan of local medication, which I have found very useful in certain skin-diseases.

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[*] Archives du Physiologie, 1874.

[†] New York *Medical Journal*, June, July, 1874.

All practitioners must have found it difficult sometimes to secure comfortable and efficacious dressings for localized patches of eczema and such affections as entail loss of the epidermis.

If lint is employed, as is usually the case, and some ointment, such as ung. zinci, be smeared upon this, a certain amount of bandaging is rendered necessary to secure this in its place.

I have found that in many situations the lint and bandaging may be dispensed with, and in its stead a piece of waxed tissue paper proves eminently serviceable.

This material is kept by pharmacists, who cover gallipots, etc., with it, and it consists simply of thin tissue paper dipped in melted wax. A piece of this is to be cut of a size sufficient to extend beyond the margins of the sore place, and the ointment suitable to the case is to be smeared upon it. The paper is then applied to the affected surface and adapted carefully to the part. Care must be taken not to put on too much ointment, or there will be a tendency of the paper to move from its position, and the excess will also exude at the edge.

It will be found that this simple plan of dressing will obviate, in many instances, the necessity for bandaging. I have often been astonished at the adhesive properties of this paper. It is especially useful for patches of eczema, herpes, pemphigus, and for superficial injuries.

I have adopted waxed paper also in cases of extensive eczema of the limbs, instead of lint, and have applied a light bandage over it. It has the advantage of being cooler, and in hospital practice it possesses also the merit of cheapness, so that poor patients may carry away a supply with them. The dressing may be left untouched for twenty-four or even forty-eight hours. If it be left for a longer period, it is apt to stick unpleasantly to the skin. When the paper is simply laid on an eczematous surface without further dressing, it need not be changed oftener than twice in the twenty-four hours.

The Treatment of Scabies.

Dr. Robert Liveing, F. R. C. P., physician to the Middlesex Hospital, in charge of the Department for Skin-Diseases, says in the British *Medical Journal*, February 6, 1875:—

There are three principal methods of treating scabies: 1. By sulphuret of potassium baths; 2. By sulphur vapour-baths; 3. By sulphur ointment. It may be a satisfaction to those who cannot conveniently use the sulphur-baths, to know that the treatment by inunction of sulphur ointment is the most efficacious of the three methods.

There are three mistakes commonly made in treating scabies, especially in private practice: 1. In not applying the remedy over the skin of the whole body, except the head; 2. In using the ointment of the *British Pharmacopœia*, which contains one part in five of sublimed sulphur, and is too strong, especially for children; 3. In using the ointment for too long a time, and thus producing an irritable state of the skin. This often happens when people attempt to *treat themselves* for what they believe to be the itch. On the two latter points, most experienced observers agree; but on the former some difference of opinion exists. In a lecture recently published, my friend Dr. Tilbury Fox remarks: "It is a rule of prime importance in treating itch, to accurately determine at the outset how far the acari have disseminated themselves about the body. The reason is obvious. There is no need to apply parasiticides to parts in which the acari do not exist, because the irritation and eruption elsewhere are due to sympathetic action; and these irritated parts will get well, if the acari be destroyed, and they do not require the use of irritant remedies, such as parasiticides are, but soothing remedies. The practice is to apply the remedy to every part of the body where eruption exists in cases of itch. Clearly this is wrong, from what I have just said. My rule is this: if the disease be recent, if it be only slightly marked, if it began about the hands, and there be no cuniculi about the penis, I order the parasiticide to be rubbed into the interdigits, the palm of the hand, and the wrists, and I apply a soothing lotion to all other irritable parts of the body. . . . I repeat, then, by way of summary, in private practice, if the disease be slight and recent, use the parasiticide to the hands only, and soothe the other parts with some emollient or astringent lotion or ointment."

In the first place, I would remark that in private practice it is in many cases next to impossible, and quite unnecessary, especially in women and girls, to examine the abdomen, thighs, and every part of the body, to ascertain how much of the eruption is due to scabies, and how much to sympathetic action.

The best plan of proceeding is, in my opinion, as follows: Having once ascertained that scabies exists, order one thorough application at night of mild sulphur ointment to the whole of the body, except the head, and direct the patient to sleep in the drawers, jersey, and socks that he has used the day before; this will secure the death of any stray acari about the body or in his underclothes; in the morning, he should use a warm-bath. The after-treatment should consist of the local inunction of the ointment, into those parts only which are especially affected, for two or three nights. In all mild cases, the cure by this plan is quite certain, and is attended with very little inconvenience. The objections to sulphur-ointment are its irritating qualities and its smell. The first is avoided by using an ointment made with half a drachm to two scruples of the precipitated sulphur to one ounce of lard. The precipitated is in finer powder, and less gritty than the sublimed sulphur, and more efficacious. A great part of the inconvenience arising from the smell of the sulphur may be avoided by using it only during the night. A drop or two of sandal-wood oil will quite disguise the smell. In cases of long standing, it is necessary to have the clothes baked; but a temperature of 190 deg. to 200 deg. Fahr. is quite sufficient, and the bed may be easily fumigated by using a little sulphur sprinkled on the cinders (not too hot) of a warming-pan.

It often happens that the irritation of skin remains after the scabies is cured, and thus induces people to go on with the sulphur treatment too long. Instead of doing so, a mild stavesacre ointment should be used, made with the oil of stavesacre and lard; this relieves the itching, and at the same time will kill any stray acari that may have escaped death from the sulphur.

On Molluscum Sebaceum.

In the *Archives of Dermatology*, January, 1874, Dr. Walter G. Smith writes:—

This curious and clearly-defined affection, although tolerably common in an isolated form and in a minor degree, is yet sufficiently uncommon in a multiple or exaggerated form to render worth noting any special cases of it. Among 1,100 hospital patients, I observed it four times; and M'Call Anderson, in 10,000 hospital cases, met with but six examples of it, and none at all among 1,000 cases from private practice. Although its comparative rarity could not be inferred from hospital statistics alone, for, since it seldom gives rise to any annoyance, the poorer classes are apt to disregard it, yet its absence from Dr. Anderson's private statistics proves its real infrequency. It so often occurs about the face, that in the higher ranks of society medical advice would certainly be resorted to.

In November, 1873, a young girl, aged six, was brought by her mother to the dispensary for diseases of the skin at the Adelaide Hospital, on account of some small, button-like tumors which had come out on the upper part of the trunk. The eruption appeared about seven months previously. The first speck came out on the back of the left shoulder, and others then sprang up in the neighborhood. When first seen there were eighteen or twenty of these little tumors scattered about the shoulders, usually quite separate, except in one place where two cohered, but preserved their individual form. They were on the average about the size of a split pea, were sharply circular, white, sessile or slightly constricted at the base, and presented at the summit the characteristic umbilical depression and central aperture, from which sebaceous matter could be expressed. Some of the tumors were touched with nitrate of mercury and speedily fell off. After a time I excised five of the tumors, and touched the base with solid nitrate of silver.

A section of one of the tumors exhibited a distinctly lobulated structure, the loculi being packed with epithelial and adipose cells.

In relation to the disputed question of the contagiousness of this disease, it is proper to mention that the girl's mother noticed that when the child squeezed out any of the tumors, wherever the contents adhered to the skin there a new tumor appeared.

Dr. Tilbury Fox has no doubt of its contagious nature.

Vinegar in Pruritus.

Dr. W. A. HARDAWAY writes to the Missouri *Clinical Record*, December, 1874:—

Dr. Bowling declares that vinegar, applied locally, exerts the happiest effects in prurigo, and I have found it to be of especial benefit, both in this disease and for the relief of itching generally. Dr. Bowling directs that the parts be sponged twice a day—night and morning—with the best *cider* vinegar, and that the citrine ointment (ung. hydrarg. nitrat.) should be smeared over the surface after the vinegar has dried. He says, moreover, that he generally produces a cure within a week, which is certainly a most gratifying result, as prurigo is one of the most intractable diseases with which the physician has to deal. Although my experience with this remedy is limited, it may prove of service to call attention to the following from a number of cases:

Case I. *Prurigo Senilis.*—J. M., aged fifty-five, consulted me for an intense and intolerable itching confined to the legs, around and above the ankles. Upon inspection I discovered the usual lesions of a prurigo—pale red papules, with little specks of dark blood at their apices, deep and painful rhagades, and illy nourished skin. He had used all manner of lotions, ointments, etc., without avail. Ordered him to sponge the parts twice a day with cider vinegar, and after it had been allowed to dry, to put on the citrine ointment. I did not see him again for two weeks, when he reported himself as cured; at least he no longer suffered from the harassing pruritus.

Case II. *Pruritus of the Scrotum.*—Dr. Garnett consulted me concerning a patient under his treatment, who suffered from this very common form of pruritus. I advised application of the citrine ointment and vinegar. Here are the notes of the case as furnished by him:

J. R. M., aged thirty-seven, was first attacked May 1st; no treatment until July 15th; prescribed:

℞ Acid. hydrocyanic. dilut. ʒ ij.
Bismuthi subnitratis, ℥ ij.
Liquoris calcis, ℥ vj.
S: use locally. M.

He was also directed to use carbolized oil. Used these remedies five days without effect. July 20th, prescribed strong apple vinegar and citrine ointment. Patient did not obtain the ointment, but used the vinegar alone. He was entirely relieved in five days.

Case III. *Pruritus Hiemalis of Duhring.*—This hitherto undescribed form of pruritus is an affection, according to Dr. Duhring, which always occurs in the autumn, or even as late as the winter season, characterized by a peculiar itching of the skin, generally confined to the lower limbs, which supervenes suddenly, lasts a variable time, but commonly disappearing during the cold months, and attacks both sexes and all ages. There is no primary eruption of any sort in this affection, but if the trouble is long continued or severe, the secondary lesions are well marked. The itching comes on at night, and is sometimes so severe as to prevent sleep, but as a rule, not returning until the next night. These attacks frequently recur during the following season. It will be seen that my case presents very similar features: E. H., aged about thirty years, consulted me the first part of last month for this trouble. He said that every fall he was subject to attacks of pruritus, which generally lasted until cold weather. He stated that the itching during this attack was almost unbearable, that it disturbed his sleep and caused him the greatest annoyance. Upon inspecting his legs I discovered no papules, but found the skin harsh, and bearing evidence of the violent use of the nails. He was prescribed bromide of potassium at bed-time, and directed to sponge the itchy places very thoroughly with apple vinegar; the citrine ointment was not ordered. He improved immediately after the first applications, and after a week was discharged well.

It will be noticed that in the last two cases the *Unguentum Hydrargyri Nitratis* was not employed. I am certain that the vinegar is as beneficial alone as when combined with the mercurial; but I suppose that in a fair proportion of Bowling's cases the latter acted by destroying the pediculi, which are so commonly exciting causes.

At my suggestion Prof. P. G. Robinson used a similar treatment to the one mentioned in a number of cases of cases of prurigo and pruritus, and, so far as reported, with excellent success.

My only object in reporting these few cases was to call attention to a remedy for a most obstinate complaint, which no less an authority than Dr. Bowling had found of service. My observation is too limited to allow me to put Dr. Bowling's estimate upon this remedy, and besides, from experience I am not prone to regard any remedial agent as of universal application; but still I find from my own cases, and also from the results obtained in a number of cases treated by other physicians on this plan at my suggestion, that cider vinegar applied locally in prurigo and pruritus has proven of decided benefit so far as tested.

I do not affirm that vinegar would be indicated in the pruritus attending eczema and diseases of that class, but it seems to be particularly applicable to those states of itching of the skin depending upon general causes, and in prurigo itself.

Psoriasis of the Tongue and Buccal Mucous Membrane.

Dr. MAURIAC, Physician to the Hôpital du Midi, of Paris, has written an interesting pamphlet on the above subject, from which we quote the following conclusions from the *Medical Press and Circular*, December 30, 1874 :—

Psoriasis of the tongue and of the buccal mucous membrane is a chronic inflammation in which two principal anatomo-pathological elements are constantly noticed. The first is a sclerous inflammation of the papillæ and superficial layers of the derma; the second, an epithelial hypersecretism which condenses in the form of gray, opaline, white plates, and which comes away in scales, squames, exclusively formed of epithelial cells.

Some authors have wrongly called this affection ichthyosis of the mouth, for it is evolved, whereas it is the property of ichthyosis not to be evolved, and to constitute a deformity rather than a disease.

There exist other anatomo-pathological elements beyond the psoriasis itself, but they are only of secondary importance. These are: lichen, pityriasis, ulcers, fissures, varicosity of the veins, glandular hypertrophy, etc.

In bucco-lingual psoriasis the parts attacked are, in the order of frequency and gravity: the upper aspect and borders of the tongue, commissures of the lips, the internal aspect of the cheeks, the internal aspect of the lips and their edges, the gums and palatine arch.

There are several phases in the anatomo-pathological process of bucco-lingual psoriasis: 1, the erythematous period; 2, sclero-squamous period; 3, formation of ulcerations, crevasses and rhagades; 4, irregularity of the edges of the tongue, mammillar condition, with islands, furrows, etc., either resulting from a scar or from an atrophy of the derma, produced by the pressure of the scales.

The plates, bands, streaks and scales formed by hypertrophy have a gray, pearly, opaline, nitrate of silver color. This last color is observed in the group of bucco-lingual psoriasis of arthritic or dartrous character.

In syphilitic psoriasis, the element of psoriasis, properly so-called, occupies the second rank in this kind of lesion. The principal anatomo-pathological elements are erosions, plates, with mucous membranes of variegated colors, ecchymotic, vegetating, or horny, etc., and deep syphilitic ulcers, with tubercles and gummata. Eruptions of diphtheritic character are more common in syphilitic psoriasis than in the other varieties.

The hypertrophy of the papillæ may go on to the formation of papillomata. Such lesions are benign or malignant. It is by the transformation of such benign papillomata into malignant ones that bucco-lingual psoriasis becomes changed into epithelioma or cancroid.

There exists, says Dr. Mauriac, a kind of artificial or provoked psoriasis, which is produced by external exciting causes, and is not the manifestation of any constitutional disease. This has been described by the name of smoker's plates. When this is kept up, whilst smoking is left off, we must admit behind it a predisposition either general or local, or a constitutional disease.

Arthritis and eczematous diathesis produce the bucco-lingual psoriasis of typical form, that in which there predominates during the whole time of the process sclerous dermatitis of superficial nature, and excess of epithelium. Arthritic bucco-lingual psoriasis and this kind just named form two kinds so near each other that it is impossible to distinguish them if there exist not on other points of the body lesions proper to arthritis or eczema.

In syphilitic psoriasis the specific element (mucous plates, tubercles, gummata, deep ulcers, etc.) predominates, and the throat is usually attacked, which is not the case in the just-mentioned group; but not all the cases of psoriasis which arise in the course of syphilis are syphilitic. Syphilis may be merely an exciting cause, and may provoke the formation of an arthritic or an epitheliomatous psoriasis.

When a psoriasis has remained a long time without being modified, and remains confined in its special anatomo-pathological characters, when it does not attack the thoat, and resists a specific treatment of syphilis, the great probability is that it is not syphilitic, even if it occur in a patient evidently syphilitic.

There are cases of bucco-lingual psoriasis which are transformed into epithelioma, and constitute a distinct species from their commencement to their termination, that is, a species in which we discover no constitutional disease. But there are also cases of arthritic nature, or even artificially caused cases, which end in being transformed into epithelioma.

The functional disturbances are much more grave in this species than in the others, at least in the advanced period of the disease. Among these disturbances, we may note salivation, lancinating pains which radiate to the ears, difficulty of speech and mastication, and enlargement of the glands, etc.

The transformation of bucco-lingual psoriasis into malignant disease of the tongue, or epithelioma, which is almost the only cancer of the tongue, is one of the most important points in the history of the disease.

There are internal remedies which are specially indicated in the three kinds of psoriasis, in arthritis, in eczema, and in syphilis. Alkalies, and in particular the bicarbonate of soda, are given in arthritic cases; arsenic in *dartrous* cases, and mercury and iodide of potassium in syphilitic psoriasis.

Mercury and iodide of potassium, which are administered as touchstones in psoriasis of doubtful nature, are very dangerous when there is no syphilitic element. They hasten the epitheliomatous transformations in certain cases of psoriasis, and aggravate their malignancy.

There is no special local agent to be employed in treating the different kinds of bucco-lingual psoriasis. Prudence and moderation are necessary in the using of substitutive agents.

Congenital Xeroderma.

Mr. Hutchinson, of the London Hospital, has the following case in the *Lancet*, January 23d, 1875:—

An old man aged sixty-one, had been sent by Mr. Herman from the Whitechapel Workhouse. He was covered from head to foot with thin dry scales, like flakes of tissue-paper. The face was almost exempt, as also the hands, feet, and scrotum; but these were almost the only exceptions. At the flexures of the elbows and thighs, and between the scrotum and thighs, precisely the parts most frequently affected by eczema and intertrigo, the skin was free from scales, but it was not normal, being glossy and polished. The man's explanation of this was that the scales had been rubbed off by the friction of the parts.

Mr. Hutchinson remarked that the case was an example of a congenital form of skin disease, or perhaps of skin malformation, which presented certain varieties, and was known under different names. Mr. Startin used to call it congenital pityriasis.

In most books it ranks as one of the forms of ichthyosis, and Mr. Erasmus Wilson, recognizing the feature of morbid dryness which is constant in all its varieties, has proposed the convenient name of xeroderma. The points to be remembered respecting it are that it is always congenital, although liable to aggravation in after years; that it usually affects several members of the same family, and that it is not caused by any known diathesis or state of ill-health. In different cases different anatomical structures of the skin are concerned. In some the epidermis only is affected, or it is the part chiefly affected, as in the case under inspection; but in most instances the papillæ and the cutaneous glands also suffer. If the papillæ grow much they present long spine-like projections, which become covered with epidermis and sebaceous secretion, and constitute the porcupine or hystrix form of ichthyosis. If, however, the papillæ and glands remain quiet, then the condition is simply one of dryness, with constant epidermic exfoliation. Of this variety Mr. Hutchinson said he had never seen such a marked and at the same time uncomplicated an example as in the case before the class.

In illustration of the hereditary character of the condition, Mr. Hutchinson mentioned several series of cases in which three or more brothers and sisters all suffered, and others in which it was known to have been present in several generations. A want of development of both sudoriparous and sebaceous glands might be supposed to be an important part of the condition, for the patients never have skins normally supple or oily, and almost always complain that they cannot sweat. In some cases the palms and soles suffer, but in others they are free. In degree the malady varies within wide ranges, being in many instances nothing more than a slight harshness of the skin. In a few cases of exceptional severity, there is observed a tendency to contraction of the skin, which becomes rigid, like parchment; and this state, when occurring in the face, may draw down the eyelids and produce great deformity and annoyance. In the less severe cases the patients do not usually suffer much inconvenience; and as, in a large majority of cases, the face and hands are exempt, the patients are not materially disfigured. The only treatment which is useful is to supply artificially that which is deficient—some unguent to the skin. In the man whose case gave rise to these remarks, the history was that the condition had existed from the earliest infancy, and that it had not of late years got either better or worse. A brother of the patient was in a similar condition, whilst their only sister was quite free. The man had two children, both of whom had healthy skins, and he was not aware that any of his predecessors had suffered. He had not observed that this state varied much with different seasons of the year, but he had noticed that in the hottest weather he very rarely perspired.

Ichthyosis of the Tongue and Vulva.

A number of cases of this disease are reported by Dr. R. F. Weir, in the New York *Medical Journal,* March, 1875. He concludes:

In the grand total of sixty-eight cases, it was observed with interest, as bearing on the question of the cure of ichthyosis, that there were but six cases noted as occurring in women; that out of forty-three cases where the age was given, twenty-three occurred after the fortieth year, and but fourteen under that age; and that it had never been met with in children. Taking the former fact as to sex in connection with the statement that the majority of the males had been smokers, and many syphilitic, we probably have a clew, not fully proved, as to the origin of the disease. But too much stress must not be laid upon this, as many had it who did not smoke, and not every one who smokes has it; and, in respect to syphilis, out of forty-three cases, seventeen had syphilis, but quite a number (six) had ichthyosis before contracting syphilis.

An interesting though solitary case is narrated by Debove, where a cook, who was smoking all the time except when asleep or at meals, had developed on the left side of the mouth, near the labial commissure, a patch of this disease, exactly where the heated stem of his short pipe rested. From a single case where ichthyosis existed, with a purulent inflammation of the middle ear, it was thought that irritation of the nervous supply of the tongue, in this case by the chorda tympani, and in others by the fifth pair, might be looked for as a cause.

In addition to these causes, that is, smoking, the arthritic and psoriatic diatheses, and syphilis, remembering, in connection with this latter, that the previous specific lesion of the tongue may so impair its nutrition as to predispose that spot to ichthyosis (Kaposi calls it a "residuum" of syphilis).*

It should be mentioned, as analogous to smoking, and acting as a local irritant, that the disease has been met with in glass-blowers, and attributed, by Dr. Andrew Clarke, to their occupation.

The duration of ichthyosis of the tongue and buccal cavity has not yet been fully determined. In the collated cases where details have been given (forty-three in number), it was found that in eight cases the disease had existed more than ten years, and in three cases more than twenty years; and in one of these latter, after a duration of thirty-four years, epithelioma developed itself. In reference to the duration of the disease prior to its transition into cancer, I venture to offer the following merely as an approximate result. It is based upon the consideration of fourteen cases; in one epithelioma showed itself after thirty-four years (just alluded to), two after twenty years, and in seven cases the disease so terminated, in periods ranging from six months to two years:

Out of the sixty-eight cases I find recorded thirty-one cases resulting in epithelioma, which transition occurred in some instances under the surgeon's own observation, so that the point of the conversion of a patch of ichthyosis into epithelioma can no longer be held in doubt, or rather be considered not proved, as it was a short time since.

Not only does the malignancy of the disease show itself in the tongue, but ichthyosis affecting the mucous membrane of the cheeks and lips has each, in one instance, so terminated (Verneuil Bassereau). Debove gives the uncomfortable opinion that the probabilities of such a conversion are equally great, whether the patch be large or small; it is of course more apt to occur in the tongue.

Is this result, however, to be expected in all the cases? The English authorities generally announce this as the customary ending to be expected, and hence base their treatment upon this opinion. Hulke states that he had tried all kinds of treatment without effect, and that in every instance epithelioma followed. He, with others, therefore, advises that excision should be practiced when it is possible, and the part affected is not of too great extent; and in one of his cases, even after this had been done, the disease advanced. In some of the cases there has been reported amelioration by the use of alkali applied to the tongue in spray—by the internal administration of natural waters, such as those of St. Christau, upon which Bazin strongly relies. These cases, with those recorded in this paper, lend support to the view of the author that they are due, or rather that some of them are due, to an arthritic, or more precisely to a dartro-arthbitic diathesis. Such a view would induce a resort to anti-psoriatic treatment, especially when associated with psoriasis or other disease of the skin.

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* "Syphilis der Haut," iii. Abth., where he gives seven plates, poorly representing this disease, save in one instance (buccal).

The case reported on a previous page by Dr. Keyes forces us, I think, to admit also the syphilitic origin of ichthyosis, not as a "residuum" (Kaposi), nor, so to speak, as a cicatrix of a former syphilitic lesion, but as a syphilitic manifestation *per se*. A somewhat similar case is narrated by Mauriac, with the disappearance of the lesion under antisyphilitic treatment. From these cases, and from a third that has only been seen since the first portion of this paper was written, wherein the patch of bluish opacity occupying the anterior half of the tongue had resulted from numerous mucous patches, I should be disposed to suspect syphilis as a cause when the ichthyotic patches were thin, of the color of watery milk, or even bluer, and of but little resistance. The irregular, circular mottling which was present in this case, as well as in Keyes's, with the adherence of the thin and moderately-changed mucous membrane to the subjacent parts, would also be suspicious of syphilis.

Finally, the ichthyoses, including those caused by known irritations, such as the *plaques de fumeurs*, glass-blowing, etc., may be suspected of malign tendencies should they present themselves as well-defined, thick, and snowy-white patches. The tendency to epithelioma is probable in proportion to the increased growth of the epithelium.

Should in the progress of the disease cracks or fissures occur, benefit is derived from lightly touching them with caustics, but no advantage has resulted from the action of escharotics upon the patch itself. The tongue should as far as possible be guarded against all sources of irritation. If any jagged teeth be present, they should be smoothed off or removed. Highly-spiced condiments must also be avoided.

Case of Hyperidrosis.

The following case is given in the New York *Medical Journal*, June, 1875, by JOHN M. BIGELOW, A. M., M. D., of Albany, N. Y.:—

On January 20, 1875, Mr. C. H. D., a clerk, aged twenty-six years, stout and healthy-looking, consulted me with reference to the above-mentioned infirmity. On questioning him, I discovered no hereditary or acquired taint of scrofula, phthisis, or syphilis. He had been troubled with this complaint for about six years; and during this time, had suffered, in addition to physical pain, so much mortification that he had shunned all society and social enjoyment. "So terrible was the *stench* from my sweating feet," he strongly stated, "that I would not even attend places of amusement or social gatherings." On inspection, his feet were found bathed in an extremely abundant, acrid, fetid secretion, the soles were fissured, and the spaces between the toes were chapped; the skin presented a parboiled appearance, and was very tender.

He had tried, with only temporary relief, brine, sugar-of-lead, carbolic acid, sulphuric acid, and other lotions. Owing to the condition of his feet, he wore cotton hose, and had powdered them with tannin.

I prescribed for him the following: Bromo-chloralum, ℥j.; water, ℥ij. Apply three times daily with a soft sponge, having previously dried the feet thoroughly with hot flannel.

For a few days his hopes of cure were raised, only to be followed by a relapse more severe than ever. I then prescribed the application of equal parts of borax and lycopodium, to be worn in the socks. On February 20th he returned to my office much discouraged, and said that all treatment thus far relieved for a few days, and then became inert. I then directed him to take to his bed, and began Hardy's treatment, as introduced by Hebra. I gave no internal remedies. I applied diachylon-plaster, as follows: cutting it into strips, I twisted them around each toe separately, and also applied them to the interdigital spaces, completely enveloping the whole foot, so that every portion of the sole, dorsum, and toes of the feet was in close and immediate contact with the plaster. These strips were removed each morning, the feet carefully and thoroughly wiped with dry, heated flannel, and new plaster strips applied. This treatment was persevered in for thirteen days, and at the expiration of that time the plasters were removed, and the feet presented a healthy normal appearance, free from the troublesome hyperidrosis. Since that time (March 2d) I have seen the patient twice each week, but so far the cure is complete, and he assures me that he now enjoys comfort and ease in walking, and can avail himself of the pleasures of society without any disagreeable odor to announce his presence.

An Obscure Exanthema.

The following cases of an uncertain exanthematous disease are given (with others) in the Boston *Medical and Surgical Journal,* April, 1875, by CHARLES W. SWANN, M. D., of Boston:—

Case I. Girl aged eleven, seen February 9th. The report was that she had taken cold on the 5th from exposure in thinner dress than she had been accustomed to wear. On the evening of that day she complained of feeling cold. The next day, the 6th, there was a maculate eruption on the neck, anteriorly; in the evening it was observed on the legs; on the morning of the 7th it was general and very abundant, and on the morning of the 8th it had almost entirely disappeared. Many of the points were described as of the size of a pin-head, and the skin was slightly roughened. With the eruption came a puffy, swollen appearance about the eyes, and immeditely after the skin became clear again there came complaint of stinging pain and tenderness in numerous posterior cervical lymphatic glands, which were moderately, but very perceptibly enlarged, and following close upon this was sore throat. A very slight cough began and continued with the other symptoms, the eyes were watery, but there was no running at the nose. The patient was not confined to bed, and the appetite was simply somewhat impaired. At the visit on the fourth day of the disease, the fauces and soft palate were reddened, and the latter exhibited numerous raised, reddish points. The tongue was nearly clean. The principal complaint was of the enlarged glands of the neck, but the tenderness of these had already begun to subside.

On the 24th, eighteen days from the beginning of the attack, the appearace of the throat was much the same, and the lymphatic glands had not yet fully subsided, although there was no longer complaint of either.

Four years ago this patient had well-marked measles, followed, after a short interval of apparent health, by mumps. She had never had scarlet fever.

Case II. Girl aged three years. She was seen February 20th. It was reported that two days before, the 18th, she had an eruption on the neck and back, and on the the 19th a decidedly red, blotchy eruption on the face. From the description it was rubeoloid, except that the precise form of the blotches had not been noticed.

The eyes were pinkish and watery; no running at the nose. The eruption was not over twenty-four hours in duration, and it began with the other symptoms. The slight dry cough which was present did not precede the eruption. There was no dysphagia. Numerous posterior cervical glands were enlarged, and there was a lumpish feeling under the right jaw. There was a little puffiness about the eyes early in the attack. She was not much sick at any time. The appetite was only slightly impaired. Two years ago this patient had well-marked measles, preceded by chicken-pox.

In the same house with the patient just described are two children whose histories are as follows:—

Case III. A well-nourished boy, seventeen months old, had a maculate eruption February 10th. It was in the form of small dots, and was slightly rough to the touch. The color was paler and less intense than that of ordinary measles. When discovered, in the morning, it was already general, excepting, perhaps, the feet. It was nearly gone on the Friday or Saturday following, but for some time afterward faint spots were visible when the child cried or awoke. There were no prodromata. After the eruption appeared the child was a little restless and hot for two nights, but in the daytime he did not behave at all like a sick child. The catarrhal symptoms, if any, were very slight. No enlargement of the posterior cervical glands was observed. There was no desquamation.

The same child began to cough February 25th, two weeks after the appearance of the above-described eruption, and on the following day, the 26th, there was a spotted eruption on the neck, and on the 27th a nearly general breaking out, the legs alone being unaffected. The whole aspect of the case was that of common measles. Some of the maculæ were distinctly crescentic. The scalp was invaded. The fauces were reddened, and the catarrhal symptoms were quite prominent. Moreover, the child was now sick.

On these and other cases he adds the following remarks:—

Remarks.—If we group the most obvious and constant facts in the foregoing cases we have: a maculate rash of short duration, very slight catarrhal symptoms, little constitutional disturbance, no prodromata, an epidemic occurrence among children. In addition to these we may note the frequent occurrence of the following symptoms: sore throat; enlarged and tender posterior cervical glands; a pale red, dotted, and not crescentic eruption, suddenly general in its appearance, or rapidly extending from above downwards, or, it may be, limited to the face; impaired appetite, or nausea; lachrymation, puffiness about the eyes, slight irritation of the conjunctiva; moderate discharge from the nose; trivial cough.

The catarrhal symptoms were never severe, and part or all of them were sometimes absent. They never preceded the rash. The sore throat, if present, was moderate; there was some dysphagia, with redness of the fauces, and in some cases a punctate redness of the velum palati. In the first case reported, the posterior wall of the pharynx was coarsely papulate or uneven for several days. The numerous enlarged posterior cervical glands were noted in seven of the eleven cases, and were sometimes a subject of chief complaint. There is no proof, except of a negative character, of the absence of these in the remaining cases. The eruption was slightly crescentic in one case only out of seven carefully examined for this character. In other respects there was a notable similarity in form, the spots being generally discrete, finer than those of measles, coarser than the fine dotting of scarlet fever, paler than either in color, and not followed, so far as observed, by desquamation. The rash was generally the first noticed symptom; but in one case the patient complained of cold the evening preceding the eruption; in another there was headache and nausea in the morning, the efflorescence occurring in the evening of the same day; in a third case there was slight sore throat the day before the eruption, and in another the child had been "under the weather" for about three days, but without specific symptoms.

With scarcely an exception, there was no disposition on the part of the patients to lie abed, or even to remit the ordinary amusements, The fever, if any, was very slight. No vomiting was reported. The tongue was sometimes clean, sometimes moderately coated; there were no enlarged papillæ.

Previous diseases were, in six of the eleven cases, measles; in two, scarlet fever; in one, varicella; of these, one had had both scarlatina and measles, one measles and mumps, one measles and varicella, and in one case the child had had "the same eruption twice before." In two children, brother and sister, living together, the disease was *followed* by well-marked measles, in sixteen days and four weeks respectively.

In eight of the first nine cases reported, the rash appeared between the 6th and 24th, inclusive, of February. The earliest occurrence noted was January 16th, and the latest, at date of writing, March 6th. Eight of the patients were girls and three were boys. The ages were from one and a half to fifteen years.

It is not proposed to draw a finer comparison than has already been made between this group of imperfectly described cases and the eruptive diseases which they resemble. A differential diagnosis will hardly be found in a very close examination of any one of the individual features of a single case. But a comprehensive survey shows a series of unselected cases so consistently related to each other in symptoms, degree and course, and in time and place of occurrence, and also so consistently different from the types of scarlet fever and measles, as to appear, whether considered alone or in comparison, *sui generis*, having a type of their own, namely, that of rubeola (rötheln, German measles), as described by the authorities. In the cases in question there is an unexpected suddenness of efflorescence, a prominence of throat symptoms, a degree of glandular affection, an absence of prodromata, a peculiarity in the form of the maculæ, an independence of the prophylactic power of measles, all of which characteristics are in more or less *direct* opposition to the view that this is simply a mild form of measles; while the absence of many of the peculiar features of scarlatina—as, for instance, the condition of the tongue and palate, the eruption, desquamation, absence of catarrh, occurrence of prodromata—makes it quite as little likely that we have to do with a modification of the latter disease. The difference in kind, in other words, is strong, as well as the difference in degree. In favor of the name roseola is the appearance and ephemeral character of the eruption; but this disease, or phenomenon, so abounds in variety of causes, that, to be accurate, one might be compelled to use the term "epidemic catarrhal contagious roseola" to express his idea.

On Eczema and Acne.

In an analysis of one thousand cases of skin diseases, published in the *American Practitioner* for May, 1875, Dr. L. D. Bulkley states that the above mentioned diseases were the most frequent and proceeds to speak of them as follows:—

It is impossible from dispensary statistics to give the ages at which the disease appears, as in very many of the cases it was of long duration, or a second or later attack; nor can we adduce anything definite as to the length of time under treatment, although notes were made of many cases, as the attendance of the poor is often fitful, and dependent very frequently upon their ability to find employment or not, and they seldom are seen as long as the physician would wish. Again, ignorance and forgetfulness on the part of patients do much to prevent or retard a cure, assisted to a large degree by the erroneous diet and habits of life, which it is often impossible to alter.

It may be interesting, however, to consider for a moment the age of those applying for relief, as in the following table:

1 year and under	18
1 to 2 years	16
2 to 3 years	9
3 to 4 years	5
4 to 5 years	8
5 to 10 years	20
10 to 20 years	39
20 to 30 years	39
30 to 40 years	38
40 to 50 years	38
50 to 60 years	40
60 to 70 years	28
70 years and over	3
Uncertain age	1

Here it will be seen that the greatest predisposition to eczema is during the first year of life, when eighteen cases were observed; and during the first five years fifty-six cases, or more than one sixth of the whole, occurred; the next five years, five to ten, giving but twenty, or a total of seventy-six for the first decade. Wilson's statistics give but twenty-nine for the first thousand, and forty-one for the second, during this first decade; showing that the lower station in life has much to do in rendering the very earlier years subject to eczema. Again, the thirty years from the ages of thirty to sixty gave with Wilson one hundred and sixty-two patients with eczema in each thousand, against one hundred and sixteen in our statistics. Now this period between thirty and sixty we know to be that most liable to gouty trouble, and it is quite probable that the indolent and sedative life with over-indulgence of the rich has much to do in making eczema more common during middle life in the higher walks of English society than among the lower classes in America.

Quite a proportion of these cases were in the young, as before stated; eighteen of the patients occurring in the first year of life, fifty-six in all being five years or under. Eczema at this period requires very careful and judicious treatment. Each case almost will require a different course; and it is well to remember that it is the *patient* which is to be treated, and not the disease. I do not order poultices to remove the crusts of infantile eczema, as many do, preferring much to cause their separation by means of fatty matter. Among the poor, and sometimes among the rich, I have the head soaked in cod-liver oil (sweet-almond oil answers), or I have an ointment applied at once in a tolerably soft form; directing that the head shall not be washed at all, but as fast as the crusts fall, perhaps with slight assistance from the finger-nail, the ointment is to be re-applied; the idea being to thoroughly protect the irritated mucous layer of the skin, and to shield it from air and water. Occasionally the crusts will accumulate and adhere, and it becomes necessary to use a poultice or wash the head well with warm water and borax; but this, in my experience, is very rare.

During the past year I have employed very largely tannin in ointment (one drachm to one ounce) in eczema, and like it very well. A very common treatment is to bathe first with the *liquor picis alkalinus*, diluted ten or twelve times, twice a day, and apply the tannin ointment immediately afterward. I have also used with very satisfactory results the subnitrate of bismuth in ointment (half a drachm to one ounce) and prefer it in very many instances to that of zinc, as commonly employed. I would again mention the value of the rose-ointment as an excipient, and its efficiency when the simple ointment has failed. Several cases of eczema rubrum covering quite a large part of the body of children one or two years old were seen. These cases are often most obstinate. Our best results were attained by starch and alkaline baths, and powdering the surface with subnitrate of bismuth and starch.

Internal treatment is always required, and I believe that the largest percentage of good results was obtained by means of cod-liver oil in appropriate doses. Syrup of the iodide of iron is also invaluable in treating eczema in children.

In adults most of the cases of eczema were of the chronic form, very many of them being in the legs, and dependent upon varicose veins. The treatment of these is very frequently unsatisfactory, because of the continued existence of the cause, especially among the poor, who cannot give the necessary time to rest. Elastic stockings should be insisted on in eczema of the legs when the disease has recurred often or lasted long; for, although the veins may not appear to be varicose, there is often a want of tone of the capillaries, which is supplied by the stockings. We have had good results from the use of tarry preparations, and have known a moist eczema to be completely healed after a very few applications of the *liquor picis alkalinus* in full strength. A common treatment in chronic eczema is equal parts of tar and oxide-of-zinc ointments, with the addition of a little mercurial ointment, as the citrine, when the surface ceases to be moist.

In place of the *sapo viridis*, or green potash soap of the Germans, I have been employing the ordinary American soft-soap made with potash, and with almost, if not quite as good results, although it contains relatively less potassa. In one case of eczema of the hands, in a mason aged thirty-three years, which had existed for ten or more years, it was used with excellent effect. He had been treated by me with other measures for six months with varying success, and when this method was commenced the skin on the backs of both hands was very greatly thickened, even to three or four times the normal; the surface was hard and scaly in some places, moist and cracking in others. He was first given a strong potash solution (one drachm to one ounce), with which the surface was well rubbed once or twice, and covered with the diachylon ointment of the Germans. This caused great swelling, which subsided, leaving the parts somewhat less thickened. He was then directed to rub in the common soft soap well, night and morning, and cover the hands as before; and after a short time the friction with which it was applied was increased, until he came to using an ordinary scrubbing-brush, such as is used for the floor. Dipping it in soft-soap, the back of each hand was scrubbed—the palm resting on a table—till the opposite arm and shoulder were tired. The result was that at each visit a marked diminution in the thickness was noticed, and in three weeks the skin was reduced to almost the normal thickness, and his hands better than they had been for ten years. This is an exaggerated case, but is of value, showing how far the stimulating treatment may be pushed with advantage; whereas, on the contrary, ninety out of one hundred of the ordinary run of eczema cases would be greatly aggravated by such means.

In one case of eczema of the scrotum I obtained very excellent results from the repeated application, by means of a camel's-hair brush, of the compound tincture of benzoin. The man ceased attending before the thickening had entirely disappeared, and the ultimate result cannot be stated with certainty; but it is probable that the disease was cured, as the remedy was the first one tried by me, and the relief and satisfaction expressed by the patient was very great.

Quite a large share of the cases of ordinary eczema of various parts was treated by the oxide-of-zinc ointment, very generally in conjunction with some internal medication, depending upon the state of the patient. Many of this class are the constant subjects of dyspepsia, and the rhubarb-and-soda mixture was very commonly used. I frequently add Fowler's solution to it, giving of the latter three or four drops with a teaspoonful of the former. Many of these patients require tonics, and the ammonio-citrate of iron and compound tincture of cinchona were generally used. Acute lichenous eczema I frequently treated with Startin's mixture of sulphate of magnesia, sulphate of iron, aromatic sulphuric acid, and gentian. Acetate of potassa, alone or combined, was used somewhat, and in my hands has done much for eczema.

Acne.—Acne appears second on our list in point of frequency, and we are quite willing to accord it that place so far as the annoyance to the patient (and ofttimes the physician) is concerned. Although acne belongs rather to those of luxurious habit, it is not an uncommon affection among the poor of this city, and especially those who lead in-door.lives; hence it is that by far the larger number affected are females (although it is true that, it being more a matter of vanity and not a disease affecting the welfare of the patient, males pay less attention to it).

There appear in our statistics one hundred and eleven cases of acne, of which sixty-nine were females and forty-two males. This is the largest proportion of any report of poor-practice with which we are acquainted, except in the Boston Dispensary for Diseases of the Skin, for 1874, where the ratio is a trifle larger. Among the poor of Glasgow* the proportion is only one twenty-fifth of the whole; that is, but about one-half the frequency which we have recorded; a fact due, as we suppose, to the more out-door life of the Scotch, their plainer habits of living, and perhaps their national fondness for oat-meal. Certain it is that the almost universal habit of frying much of the food, together with the great use of potatoes and the over-indulgence in tea, are prolific sources of acne with us.

Under acne I include not only the well-known papular and pustular eruption on the face, but also the erythematous form; the acne rosacea, which Wilson has attempted to isolate with the name gutta rosea; also the functional disturbances known as comedo, or acne punctata, and seborrhœa, or acne sebacea. The one hundred and eleven cases presented the following varieties: acne sebacea, 12; acne punctata, 8; acne molluscum, 1; acne simplex, 40; acne indurata, 22; acne rosacea, 28.

The acne simplex is decidedly a disease of adolescence. The youngest persons in whom it was observed were two girls aged fourteen; two boys aged fifteen were recorded also with this form. During the five years from fifteen to twenty, thirty-five cases of acne applied for treatment, and twenty-nine from twenty to twenty-five years of age; thus making the total number before twenty-five years of age sixty-six, and after this period but forty-five.

It is not easy to make out the causes of disease among this class of patients, as the time given for treating them is very limited, and the notes made are often hurried. A large share of the cases, however, depended more or less directly upon the occupation, habits, and diet of the patient. Very many were directly associated with constipation and dyspepsia, and a few doubtless with uterine derangement, as many of the symptoms were often complained of; but no uterine examination is possible in this run of practice. To my mind it is useless to call this acne by the name *juvenilis*, and attribute it to sexual development; for, although it most certainly occurs very frequently during this period, on the other hand multitudes pass puberty without its appearance, or if it does occur it is of mild form and short duration; the changes in the skin occurring at puberty undoubtedly predisposing to it, but the disease does not appear in its rebellious form without some other exciting cause.

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*McCall Anderson—Treatment of Diseases of the Skin, 1872, p. 7.

The oldest patient with acne rosacea was a man aged fifty-four. There were quite a number of cases of acne sebacea in old persons, the oldest person being a man aged sixty-six. The nose is the most common seat of the dry, almost horny secretion, forming crusts reaching down into the sebaceous glands. These latter cases are very difficult to cure. The best treatment is the repeated application of an alkaline wash (as of caustic potash, five to ten grains to the ounce), and the after-use of some slightly stimulating ointment, applied in very small quantity.

Very many of the acne patients were benefited by the internal administration of acetate of potassa (fifteen grains three times daily, well diluted) on an empty stomach; but the effect of this must be followed up by tonics. Arsenic, in my experience, is of but very little use in acne. I have during the past two or three years employed quite largely the plan of treatment suggested by Gubler, of Paris—namely, the internal use of glycerine in doses of from one to three or four tea-spoonfuls three times a day, after eating—and with good results. At first I colored and flavored it, but latterly I have given the citrate of iron and quinine in it, which effects both, and assists its tonic action. This plan is especially suited to those whose skins are greasy or muddy-looking, with many comedones. I have had it fail repeatedly in the rosaceous form.

Locally most of my patients used hot water with good results, and I have prescribed more largely than any other a lotion containing one drachm of washed sulphur, four drachms of sulphuric ether, and three and a half ounces of alcohol, and with very generally good effect. I have rarely employed the bichloride of mercury in washes, but sometimes the well-known wash of sulphur, camphor, and water.

VIII. GONORRHŒA AND SYPHILIS.

On Prostatic Gleet.

Mr. Berkeley Hill, in a lecture reported in the *Lancet*, February 13, says of this:—

A muco-purulent discharge from the prostatic part of the urethra may be caused: 1. By extension of gonorrhœal inflammation along the urethra to that part. 2. By congestion and irritation of a sympathetic kind of the prostate body, excited by masturbation, excessive coitus, stone in the bladder, piles, etc.

To begin with the first of the above. The prostatic urethra is most commonly affected in gonorrhœa by an acute inflammation of the mucous membrane, known as inflammation of the neck of the bladder; this, being an acute affection, does not properly come under our consideration here. But gonorrhœa also causes a gleety discharge from the prostate in the disorder known as *chronic prostatitis*. The discharge is whitish, scanty, only to be perceived at the meatus urinarius when several hours elapse between the acts of micturition, such as that between going to bed and rising in the morning. Shreds may always be detected in the urine. In a well-marked case the patient has recently had a gonorrhœa in which, as the free discharge, smarting, and chordee subside, a new series of symptoms commence. The patient complains that, while the urine flows, a sensation of heat extends along the whole urethra, often radiating towards the buttocks, but felt most severely at the neck of the bladder when micturition is over. Moreover, at other times he has dull pain at the perineum or near the anus, sense of fulness in the rectum—rather worse when lying down in bed at night than by day when moving about. When in bed the patient finds he must pass water twice or thrice before morning. The act of passing water is also characteristic of prostatic affection. Not uncommonly some seconds elapse before the urine appears when the patient essays to micturate, and usually a few drops of urine dribble from the urethra when the stream ceases, owing to the compressor muscles of the membranous part not performing their office of forcibly emptying the hinder part of the passage. The patient is often tired by less walking than usual, and a long walk generally excites the sensation of fulness or weight in the rectum. The finger passed into the rectrum seldom detects any distinct alteration in the size of the prostate, though it may be somewhat longer; it is generally slightly tender to the touch. The best evidence of this tenderness is obtained by passing a bullet-bougie or sound. If a flexible bougie is used it should be one that contains a leaden wire in its stem, so that, if necessary, the stem may be bent to an obtuse angle of about 135° at one inch from the point. The instrument traverses the urethra without causing pain until the bulbous part is passed; the patient then flinches, and the instrument is often grasped by spasm of the voluntary muscles surrounding the membranous part. In a few seconds, if moderate pressure be kept up, the instrument passes on a little further, sometimes to hitch again with increased pain to the patient, or, if it reaches the bladder, the resistance suddenly ceases, and the instrument causes pain even when the point has entered the bladder. In withdrawing the instrument, when the bullet is disengaged from the neck of the bladder, spasmodic contraction of the membranous part drives it out rapidly until the bullet is through the triangular ligament, where it lies quietly enough, and all pain ceases. When the prostate is swollen, a rigid instrument with angular bend, such as this, will often pass better than a flexible one, which cannot be readily directed. It will be stopped when it has entered the membranous portion, but, by rapidly lowering the shaft as soon as the beak has passed through the triangular ligament, the beak is raised against the roof of the urethra, and surmounting the impediment to its progress lying in the floor of the prostatic part, enters the bladder. This tenderness of the prostatic and membranous parts, when the bougie passes through them, is always diagnostic of prostatic affection, while the muco-purulent discharge and recent existence of gonorrhœa are diagnostic of inflammation, even should the pain and aching and altered stream in micturition be too slight to attract attention.

Next to treat the affection. Here begins the unsatisfactory part. There is no method yet discovered by which a gonorrhœal prostatitis may be cured *tuto, cito, et jucunde.* The patient is relieved of his affection rather by following a regimen that, by keeping away noxious influences, allows full scope to the curative power of nature. To this end the patient's diet should be carefully regulated; excess of every kind, and alcoholic drinks especially, be avoided, unless the enfeebled condition of the patient renders wine necessary as a stimulant—a state of affairs, in my opinion, seldom really present; but in this it is difficult to get your patient to agree with you. When really needed, one or two glasses per diem of light sherry, good claret, or even good port wine, are the best kinds to use in these affections. The bowels, if irregular, are best cleared by the daily draught of Friedrichshall water—half a tumblerful made warm by adding hot water, and taken into an empty stomach while dressing every morning. Purgation is as injurious as constipation, but regular evacuation is necessary. Regular walking exercise of moderate quantity, healthy mental employment, and abstinence from sexual intercourse and lascivious thoughts of all kinds, should be most rigidly practised. For medical treatment, I have found little benefit from drugs. If there is much pain and nocturnal irritation, a very mild anodyne suppository passed into the rectum at bed-time should be ordered—such as one-third of a grain of extract of belladonna, a quarter of a grain of hydrochlorate of morphia, one grain of camphor, and ten grains of cocoa butter, melted together and cast into a conical shape. If the repeated use of the morphia interferes with the action of the liver, an occasional dose of calomel with a little colocynth should be given. While the discharge is whitish or opaque, two or three drops of copaiba in frequent doses is often useful; and when the prostate has lost tenderness if pressed by the finger, one or two drops of tincture of cantharides, in plain water, four times in twenty-four hours, is also sometimes magical in its effect. A good formula for the copaiba is: copaiba, two minims; essence of cinnamon, twenty minims; mucilage, twenty minims; water, one ounce: four times daily. When all the pain and spasmodic twitching of the compressor muscles have passed away, cubebs, in moderate doses—say, ten grains four times daily—is sometimes useful to check the secretion completely. But at this period local treatment becomes so clearly efficacious that I am not sure how far cubebs is serviceable, for I have not trusted to it alone. For *local treatment* I have most faith in the following: When considerable pain is felt if the finger is introduced into the rectum, and the prostate feels large and soft, leeches are useful—that is, three or four applied by means of a leech-tube to the mucous membrane within the anus; or if the introduction of a foreign body causes pain, which is often the case, and the requisite skill be not at hand, twenty leeches applied to the perineum are very beneficial. When the protastic tenderness has subsided, cool hip-baths for five minutes, morning and evening, beginning at 85° F., and gradually lowering the temperature to 50° F. by adding cold water, are useful. They may be continued several weeks with benefit. In continuous moderate counter-irritation, lauded by some surgeons in chronic prostatitis, I have no faith. I have used it over and over again; but I could never satisfy myself that the repeated application of small blisters to the perineum lessened the prostatis. If it benefited the patient at all, it did so by engaging his attention and satisfying him that "something was being done," while the really curative agents I have already mentioned were slowly producing their effect. Counter-irritation by means of caustic solution of iodine is, I believe, useful when applied in the following way:—Paint the perineum, the genito-crural folds, and neighboring parts of the thighs, so that the area is as large as half a square foot, and thus raise a considerable amount of irritation, too great to allow the patient to walk about for some days. Such irritation I have known to remove all the symptoms in a few hours, except the gleet, and that to be in a fair way to depart. But this favorable result is is by no means constantly obtained; hence I avoid counter-irritation till I have tried other means. In long-standing cases the condition of the prostate closely approaches that of the so-called "irritable" or "relaxed" prostate, and applications to be employed in that condition may be adopted for its cure.

The "irritable" or "relaxed" prostate is frequently met with in practice, and though not invariably so, is in the majority of cases a consequence of that disgusting habit, masturbation. Irregular and unsatisfied sexual excitement produces this condition, probably by causing frequent determination of blood to the prostate, as well as to other parts of the sexual apparatus, without also obtaining from them speedy evacuation of the blood which the sedative effect of natural gratification ensures. The result is the crypts and secretory apparatus produce abnormal quantities of mucus, the gland generally is turgid and over-sensitive or tender, the urethra passing through the swollen organ is altered in shape, whereby the passage of the urine is impeded and the pressure of hard fæces or the finger causes pain.

Nevertheless, in these cases the physical condition is far less important than the intellectual and moral one; but, happily, if the former is removed, the latter usually disappears rapidly. What is generally observed is this; the patient notices that a transparent glutinous discharge, closely resembling white of egg, oozes from his urethra in minute quantity constantly, but when straining at stool, or moved by even the slightest erotic desire, this discharge comes away to the amount of several drops at a time. The only other symptoms not of a sympathetic kind are a little dull, heavy sensation, seldom amounting to pain, in the perineum and rectum, and occasionally, though not constantly, a scalding or smarting on making water. If the sound or bullet-bougie be passed, the patient makes little complaint till the prostate is reached, when he often screams like a child, and a spasm lays fast hold of the instrument for a few seconds, but then releases it, and if the bougie be pushed steadily on, it enters the bladder without further difficulty or increasing the pain.

In these cases the sympathetic derangements of the patient attract chief attention; yet they must not be considered to be the whole mischief, nor can they be cured unless the local troubles be also got rid of; and, that having been achieved, the nervous and intellectual disturbance always disappears. More than once, not in young men, but in those who have got into their fourth decade, I have found the irritable condition of the prostate to be greatly stimulated by a stricture. Such patients have had a gonorrhœa years before, which, owing to dread of acquainting others with their condition, they have left untreated; or, with the hope of ensuring secrecy, have trusted themselves to quacks. Further, to avoid contracting disease a second time, they have continued or reverted to their masturbating practices. These patients are in a most pitiable condition, and cure of the stricture alone only partially relieves their sufferings.

These nervous affections generally begin somewhat in the following way:—The escape of the sticky, transparent fluid attracts the patient's notice, which he believes to be semen, and quickly all sorts of horrors crowd into his mind—that he is becoming impotent, that he is losing his intellect, growing insane, paralytic, etc.—all which forebodings are often suggested to him by a quack pamphlet, which he studies intently, till convinced that the horrible exaggerations set forth in those publications exactly describe his own condition. He will tell you that he is incapable of intercourse, or if he does occasionally succeed, he is wearied beyond measure, has a dull sensation in the backbone, describing it to be sometimes painful; sometimes he likens it to what he fancies he would feel if he had no backbone at all. He finds himself moreover quickly tired by walking, unable to apply his mind to intellectual occupations, and his memory going. Then he gets shy, timid, and shuns society, especially that of women, to indulge in morbid reveries of a pseudo-erotic kind. His bodily ailments do increase, no doubt, but are mainly those connected or occasioned by indigestion, flatulence, loss of appetite, irregular action of the bowels, flying pain in abdomen, palpitation or giddiness. There is usually copious deposit of lithates or phosphates in the urine, which the patient commonly supposes to be the semen itself, for the precipitated phosphates may be so abundant as to resemble lumps of white jelly in the urine, which the patient describes to be as white as milk as it escapes from him. Having these various ailments to a greater or less amount in reality, the patient dreads still further calamities, such as paralysis or epilepsy. Indeed, I once spent an hour in trying to convince a patient who walked briskly into my consulting-room that he was not suffering from hemiplegia, of which he had read a full, true, and particular account in a quack's circular. But it was an hour wasted, for he walked away as hemiplegic as ever in his own opinion.

This leads me to treatment. The first point to keep before you is—however ludicrous the patient's narration is to you—to recollect that to him it is a most real and serious anxiety, and that your obligation to cure him of his condition is just as binding as if he were suffering from some more clearly recognized surgical ailment. You will find it the best plan to let him tell his own story, as Paddy says, "out of the face"—that is, to let him go on until he has finished all he has to say, and then make the inquiries necessary to ascertain the exact depth of the trouble into which he has fallen. Do all this quietly, and, having resolved what to advise, tell him that though he is certainly quite right to be somewhat alarmed about himself, his condition is far from being beyond cure; on the contrary, he will in time recover perfect health. If you can succeed in convincing the patient of this, you have already half cured him. Then inquire into his diet; you will often find that he eats his meals hurriedly, or at a time when he cannot digest the food he swallows, or that some article of food he habitually takes disagrees with him. Regulate his diet, keep the bowels clear, and employ the medicines best fitted to improve his digestion. When phosphates are freely deposited, I find dilute nitric acid and tincture of nux vomica, ten drops of each in an ounce of water, two or three times daily, very useful. But there are a host of remedies applicable to varying conditions of indigestion that I need not mention. The local treatment consists of measures that allay the sensitive condition of the prostate, so that the pressure of a full bladder or full rectum, or the flow of the urine through it, shall not excite the organ, and cause its more or less frequent congestion. I do not know that bromides or iodides have any direct influence; the former may induce sound sleep at night, and thus lessen the frequency of erection and seminal emissions, which do harm by stimulating congestion, but I believe bromides have no further effect. Examine the prostate with the finger, and if not specially tender, pass a flexible bullet-bougie along the urethra, and don't be alarmed by the amount of outcry it causes, or even should a drop of blood be found adhering to the end of the instrument when it is withdrawn. Of course you will employ the greatest gentleness in passing the instrument, and withdraw it as soon as you reach the prostate if the pain is really very severe. The pain, which is of a burning kind, disappears very quickly, and the patient, even if he have fainted from the nervous shock, in a few moments gets up and acknowledges that he feels no particular inconvenience from the operation. In the next three or four days he experiences great improvement; the amount of discharge is less; there is less aching in the sacrum and thighs after walking; and consequently his spirits are better and his several nervous disorders trouble him far less, so that on his next visit he will usually allow the bougie to be passed again, and may even beg for it spontaneously. After the first introduction the spasm is commonly much less, and when it has been passed a few times the amount of suffering is very bearable. In order to reduce the pain to a minimum, I use at first the most flexible black French bougies with tapering ends that I can obtain, till the irritation has considerably lessened; when a steel No. 10 sound, with short curve, is generally the most effective instrument to use. So long as any tenderness or spasm remains, the sound should be passed once a week if the good effect last so long, twice a week if the dull pain and sense of weight begin to revive after three or four days have elapsed. It now and then happens that the passing a sound becomes real agony. In such cases I am accustomed to pass the catheter, and throw in from ten to fifteen drops of solution of nitrate of silver (twenty grains to the ounce); first rendering the patient insensible by chloroform, or, better still, by gas and ether, and emptying the bladder, if the patient has not already done so in the natural way, before the injection is thrown in. While he is still unconscious, it is well to inject one-third of a grain of morphia under the skin, to maintain insensibility for the three or four hours that elapse before the pain of the injection subsides.

This injection is also useful in chronic prostatitis, and must be carried out in the same way. For this it may need repetition more than once or even twice; but repetition is rarely if ever needed for simple irritable prostate, as after one injection the slight tenderness remaining is easily controlled by the regular introduction of a bougie about once a fortnight, which the patient may learn to do for himself. When the digestion has been restored or greatly improved, and the local irritability has subsided, the recovery may be made complete by sending the patient a long sea voyage—to Australia or New Zealand, for example, where he will do well to go up the country and get employment in cattle-driving or sheep-farming. By such means his body is invigorated, his mind fully occupied, and he is removed from temptation to sexual excitement. In a year or so, by the time he is fitted for sexual intercourse in marriage, he should seek that as the best safeguard against relapse into his old condition.

It sometime happens that a gleety discharge in the prostate is due to the sinus left after prostatic abscess. Such a condition is very difficult to cure. By the endoscope the mouth of the sinus may sometimes be detected; if so, a small sponge on the end of a wire, and soaked in caustic solution, can be passed into the sinus, and so adhesive inflammation set up. But usually it is best to let it alone and assure the patient that the affection can cause no serious mischief.

Treatment of Urethritis.

The *London Medical Record*, January 13, 1875, states that Dr. Bedoin, chief surgeon in the military hospital of Versailles, employs both liquid and solid injections against urethritis. The formula of the liquid injection is as follows: Crystallized sulphate of zinc, crystallized subacetate of lead, of each 20 centigrammes; distilled water, 100.00 grammes. The bottle to be shaken whenever the injection is used. According to the *Annales de la Société Médico-Chirurgicale de Lille*, October, 1874, as soon as the inflammatory period is passed, Dr. Bedoin gives his patients four or five injections daily. In proportion as the discharge diminished, he reduced the injections first to three, then to two, then to one, and proceeded in the same way until there was not the slightest urethral discharge. Towards the conclusion of the disease he gave the patient a little wine, and gradually augmented the quantity until the urethritis was completely cured. The solid injections were administered according to Dr. Paillasson's formula; they consisted of simple glycerole of starch, or with a hundredth part of sulphate of zinc added to it. To insert these solid injections in the urethral canal, Dr. Paillasson uses a cylindrical or flexible tube, like those in which painters keep their colòrs, previously filled with glycerole of starch. A small cannula is screwed to one end, and gradual pressure exercised at the other by means of a small key round which the tube is rolled, forces the injection into the urethra. The tube is graduated into equal divisions, which serve to indicate the average dose of the drug to be injected into the canal. Both chemically and physically the glycerole generally used by M. Paillasson is extremely well adapted to remain in the urethra, and the operation is absolutely painless in the immense majority of cases. These methods of treatment have been tried for six weeks on seventy-two patients, the minimum duration of the treatment having been for ten to fifteen days.

The results obtained were fifteen failures, of which eleven were treated by liquid injections, and two by Dr. Paillasson's solid injections. The cures amounted to fifty-nine, of which forty-five, one a case of acute, and eight of chronic urethritis, were healed by liquid injections, and six were treated by Dr. Paillasson's solid injections.

A Case of Double Gonorrhœal Ophthalmia.

The following case is mentioned in the New Orleans *Medical and Surgical Journal*, for May, 1875, by Dr. V. GRIMA:—

The case is that of a man who called at my office, stating that both of his eyes had become red and swollen, and were running matter profusely since the preceding evening; furthermore, said that he was suffering from acute gonorrhœa, and felt assured that *contamination* was the cause of the eye trouble. He was very much alarmed and requested to be sent to my hospital wards, stating that he had no one at home to assist him in attending to his own case. I ordered him to the Eye-Wards immediately, with strict recommendations not to allow any one around him but a well trained nurse, for fear of further contamination in the ward. The only prescription was that he should dip his face in a basin of water as often as he could, every fifteen minutes, if feasible, and wink his eyes in the water so as thoroughly to wash the matter out. During the intervals I directed him to keep constantly a wet rag over both eyes. The prescription was followed for three days and nights, the case improving rapidly in the meanwhile. During that lapse of time I touched the lids twice with nitrate of silver (10 grs. to oz.), everting the lids thoroughly and washing away the medicine immediately. I then had the patient to stop the trying experiment and rest; he went on improving gradually for about a week, when one morning I found, at my visit, that his eyes looked entirely well; not the slightest secretion was to be seen; the gonorrhœa had also stopped. He then called my attention to another form of trouble; both of his knees were swollen and painful, so were his elbow joints and wrists. I prescribed iodide of potash internally and iodine paint locally. The trouble lasted about ten or twelve days; the knee joint being largely swollen by intrà-articular fluid. He then gradually, and rather rapidly, got well, but again complained of his eyes, which had become very painful; on examination I found that he was suffering from rheumatic iritis. The patient finally recovered, the whole trouble having lasted about six weeks.

On Syphilitic Epilepsy.

Two cases of this disease which exhibit its character, are given by Dr. E. C. SEGUIN, in the *Archives of Dermatology*, January, 1875:—

Case I. An adult male, a patient of Dr. W. H. Draper, contracted a chancre from a woman who, upon examination by Dr. D., bore no lesion, either recent or old, upon the sexual organs. At time of taking these notes she had presented no secondary lesions. In due time this gentleman exhibited syphilitic psoriasis and a moderate display of mucous patches; no tertiary manifestations. There was much impairment of the digestive functions, with frequent diarrhœa during the summer, and the iodide of potassium was not over well borne. In September of the same year (1873), while sitting in his office, when quite as well as usual, he felt a queer sensation in the region of the right deltoid (numbness), which very quickly ran down into whole of arm and hand. He had same sensation in right side of face, with almost simultaneous tonic spasm throughout the right side, body and face. Speech was much embarrassed for a few moments. A very intimate friend's name being mentioned, he asked, " B., Who is B. ?" showing marked amnesia. Patient asserts that he did not lose consciousness. There had been no second attack. Dr. Bumstead, who saw the patient in consultation, expressed the opinion that this epileptiform seizure was different from attacks observed in the tertiary period of syphilis, and advised the use of mercury by inunction. The patient has remained free from any further manifestations of disease.

Case II. A gentleman, aged forty-three, a patient of Dr. Brown-Séquard, seen by me in January, 1872, in 1857–58 had primary and secondary syphilitic symptoms in Russia, for which he was thoroughly treated during a period of three years. He remained well until 1870; living pretty high all that time, though not drinking to intoxication. On the 4th of July, 1870, he was seized, during the night, with a severe epileptic paroxysm, lasting several hours (?). Came out of it without paralysis. He at once came to town and submitted to treatment by large doses of iodide of potassium. During the summer and autumn of that year, he had some four attacks, the last occurring in the middle of October. He never had diplopia. In March, 1871, he consulted Dr. Brown-Séquard, and was by him put upon the use of the iodide and bromide of potassium. According to the patient's statement, he was then in a state of great debility, and was much weaker upon the left side of the body than on the right, and suffered from marked impairment of memory. In these seizures there was no preceding aura; he was as if struck down. Up to date, January, 1872, has had no return of symptoms; has much improved in general health.

Use of Mercury in the Late Stages of Syphilis.

In the *American Journal of the Medical Sciences*, January, 1875, Dr. STURGIS writes :—

As I am anxious to present my own views in order to elicit the opinions of others experienced in these matters, and to learn the relative value which they attach to the two remedies, iodide of potassium and mercury, I will present the abstract of two cases of advanced syphilis, which will serve as examples, where the iodide had only a temporary effect, and where mercury was finally resorted to for effecting a permanent result.

Case I. A woman 31 years of age, who was under the care of Dr. Roosa at the Manhattan Eye and Ear Hospital, and whom I saw in consultation with him, had *iritis, choroiditis disseminata*, and *neuritis* of both eyes, due to a syphilis of several years' duration. The previous symptoms had been of a mild form, and principally confined to sore throat and headache until the affection of the eyes began, one year before. Vision: right eye, 2-5; left eye, 2-7. Although mercurials were used at first, in the form of the bichloride, internally, with the iodide of potassium, the mercury was for some reason suspended, and the chief dependence placed upon the iodide. Vision in both eyes improved to ⅔, and there remained, neither improving nor diminishing. The amount of potassium taken then was gr. 150 in the day, in three doses.

Matters went on thus for some ten or eleven weeks, when there occurred a gummous infiltration in the left sub-clavicular space, attended with enlargement of the clavicle and supra-clavicular glands, and tenderness on pressure extending to the acromion process of the scapula of the same side.

The iodide was still used, with the addition of syr. ferri iodidi, gtt. x. ter die, but no mercurial. Vision in both eyes still remained ⅔. During the next three days, no improvement resulting, recourse was had to the emplast. de Vigo cum mercurio locally to the clavicular and sub-clavicular enlargements, followed a few days later by mercurial inunctions in drachm doses at night, combined with iodide of potassium. The result was extremely gratifying; in a week the enlargement had materially diminished in size, the pain was much less, and vision, which before was ⅔, was in the right eye 1, and in the left minus 1; by that I mean she miscalled two letters in No. 20 Snellen scale, calling *C G*, and *vice versa.*

The ophthalmoscopic examination, I have purposely delayed giving. The iritis got well under the iodide treatment, but the choroiditis went to atrophy, and the neuritis increased. As soon as the mercury fairly took hold, the neuritis began to improve, the nerve entrance became more defined in outline and of a rosier hue; in other words, improvement commenced.

CASE II. is that of a young man who contracted his chancre in 1863, which was followed by ulcers upon the leg, neuralgic and rheumatic pains, and sore throat. In 1870, he had an attack of hemiplegia, from which he recovered. The treatment up to that time was by the iodide of potassium only.

In June, 1873, he came to me with an ulcerating gumma seated under the left arm, below the axilla and close to the upper border of the pectoralis major, with the statement that it commenced as a small painless swelling, which slowly increased, softened, and opened. When I saw it, the ulcer was about 1″ in diameter, seated upon a brawny base, surrounded with a dusky red areola, with a gray pultaceous floor, adherent to the tissues beneath, and secreting a thin serum.

I determined to give the iodide a fair chance, and after four months of tedious treatment by this salt only, the ulcer finally closed. He used the iodide in 50-grain doses three times daily.

In April, 1874, he returned, saying the ulcer had broken out in the same spot, and at a second point just below. On examination I found it as he had said. The ulcers bore the same characters as the one of June, 1873, the only difference being that they were smaller. He also complained of intercostal neuralgia of left side, which was aggravated at night.

Recalling the tedium of the 1873 treatment, I resolved to use mercury in combination with the iodide; and with that object he was directed to use one grain of the proto-iodide of mercury, and 100 grains of the iodide daily in two doses. In four days the ulcer on the old site had entirely healed, the new ulcer was one-half of its former size, and the intercostal neuralgia had disappeared. I saw him a short time after in the street, and he told me he was "about well." I, of course, had no chance to examine the side.

Now, here are two cases which will serve to illustrate the effect of the iodide when used alone, and in both we find that although it unquestionably did improve the condition of the patients, it did not go far enough to produce a radical cure, nor did it prevent relapses, in the one case during the treatment, and in the other in six months after the iodide had been omitted. And another feature is noticeable: the instant mercury was used, improvement was much more rapid than it had been where none had been employed.

The form and manner of giving the mineral is not an unimportant matter. My favorite method of giving mercury is by inunction, and the usual objections made to its use in this way may be obviated by using it to the soles of the feet and wearing the same stockings night and day. In that way the soiling of the linen may be prevented.

One of the neatest preparations of mercury I have ever used is the oleate of the 20 per cent. strength, either with or without morphia. This is given in from half a drachm to drachm doses, externally, at night. The absorption is much more rapid than is the case with the ordinary ointment; it is a much cleaner preparation, and acting more forcibly, less of it is required. In speaking thus of inunction, I do not intend to do injustice to the other means at our disposal, such as the mercurial vapour bath, nor the internal treatment. All have their appropriate seasons of use, but of them all, the inunction method seems to me the one least open to objection, and one which, in the long run, will give the most satisfaction. The only preparation against which I acknowledge prejudice is the bichloride; in my hands it has been liable to produce the toxic before it does the therapeutic action, and it does not admit of the free use which other and milder preparations do.

The only other mode of administration which I have left unmentioned is the hypodermic one. It is objectionable in several ways, and not the least of them is the attendant pain, notwithstanding the use of morphia with the injection.

With regard to the manner of giving, not only mercury, but the iodide of potassium in these late stages of syphilis, I would state that in the first place we should not be afraid to use the drug, in the face of so dangerous a condition of things. I have no doubt that among my readers many can bear me out in the assertion that the disease will hold its own against small doses when large ones crush it. Therefore, the doses should be cautiously run up from moderate ones to the point of toleration, being watchful and ready to diminish or abandon the amount should occasion require, or to resort to some other preparation. But with prudence that will seldom occur, and the mercurial, so far from proving an injury, will be a positive advantage; in place of acting as a depressant, it will have a tonic effect, and the patient will improve, not only as regards the syphilis, but in general health as well.

It may very pertinently be asked how long these large doses are to last. I answer, until the symptoms disappear, or cogent reasons in the patent's condition require its abandonment. This latter reason will obtain in but few instances, so the former one will really be the guide. And after all symptoms have entirely vanished, it will be well to continue treatment for a month subsequently—not that by so doing you will insure patients against another attack, but will afford them a better chance of escape. I know that this is contrary to the opinions of many credible and trustworthy observers, but my own experience leads to this view.

After this month's treatment is finished, a course of tonics may perhaps be advisable; and, although it scarely comes within the scope of this paper to do more than allude to them, it must be borne in mind that we, as scientific physicians, cannot afford to overlook them, especially in such stages of syphilis as are marked by great cachexia.

The Transmission of Syphilis.

An article in the New York *Medical Journal*, January, 1875, by Dr. J. E. ATKINSON, closes as follows:—

Assuming the accuracy of the conclusions of different writers concerning the origin of both germ and sperm cell in the epithelium-cell, and of this latter in the leucocyte, which is declared to be the contagium-bearer of the human blood (and, in the present state of science, evidences are daily accumulating in support of them), the following deductions may legitimately be drawn :—

1. A syphilitic mother may primarily infect an ovum, which may subsequently become impregnated.

2. She may, the ovum escaping, subsequently infect the embryo through the bioplastic elements of her own blood, during the process of nutrition.

3. A syphilitic father may also, through the sperm-cell, infect the germ-cell impregnated by it, the result being a syphilitic embryo.

These results appear to me far more satisfactory than those heretofore reached, clinically ; for, as already remarked in this paper, by such methods it cannot in the first place be decided whether a syphilitic father may primarily infect the embryo, since definite proof of the mother's immunity cannot, or rather has not been had.

2. It is, and must always remain impossible to decide, when the mother has had syphilis previous to conception, whether the fœtal infection takes place through the ovum, primarily, or the subsequent circulation between herself and the child.

3. Positive proof of infection is alone capable of demonstration in those cases where syphilis has been acquired by the mother at some period during pregnancy.

There remains to be noted the following point in the consideration of syphilis transmitted to the fœtus, and in it is also involved the whole subject of the pathology of specific diseases ; it is this : why is it that a person, being syphilitic at the very time of impregnation, may become the parent of a healthy offsring ? That such persons do beget healthy children sometimes is a fact of which almost all writers upon syphilis are cognizant, and which has appeared to be utterly inexplicable. The discovery, however, of the solid character of certain contagia, with the strong probability that that of syphilis is of the same nature, turns a flood of light upon this vexed question.

If the blood were universally pervaded with the poison-bearing principle, it would be impossible for any moist tissue in the organism to escape contamination; bones, cartilage, muscle, connective tissues, nervous system, viscera, all would be involved in the common calamity, in proportion to their moisture. That such a condition does not exist, we know; since, in their subjective and objective symptoms, not only syphilis, but all the zymotic diseases, express themselves by the selection of certain parts and certain individuals of those parts, for their special morbid manifestations. This must of necessity be so; for the universal involvement of these tissues, the various combinations of whose functions result in life, in a common and simultaneous perverted molecular motion, would be incompatible with its continuance, a fact which forces itself upon the attention in the treatment and etiology of the specific fevers; for, invariably, the powers of life succumb in these diseases in direct proportion to the intensity of the morbid action; in other words, that patient dies most certainly whose system is most intensely pervaded by the contagious principle. Now, contemplating this question, assisted by the light thrown upon it by recent investigations, we begin to apprehend that, the contagion not being a gaseous or liquid substance, a solution of the mystery is attainable.

The solid virus is able to effect its object only when brought into actual contact with other solid particles, which, in their turn, must meet still other solid particles; thus, the contagium, not being all-pervading, cannot be brought into contact with all the tissues capable of being infected, at least at one time. Now, when we reflect that there exist strong indispositions for the parts of many individuals to assume certain morbid actions, or to be strenuously affected by such actions; considering, in particular, the sluggishness of the syphilitic virus, completing its phases in months and years, where other contagious disorders perform their changes in hours and days; it becomes easily conceivable how certain lymph-cells and leucocytes, and the descendants of these, the epithelial cells, and consequently reproductive cells, may escape the fate that has befallen their brethren; so that a single seminal discharge may consist of sperm-cells both healthy and morbid, while the Graafian follicles may contain ova of like differences.

The Relation between Rachitis and Syphilis.

On this topic Dr. R. W. Taylor says, in the *American Practitioner*, February, 1875:—

The question arisis, Can syphilis in any way modify the organism so as to predispose to the development of rickets? We have seen that syphilis has its essentially specific manifestations; now, can it induce lesions which are not thus essentially specific? In other words, does it invariably show itself by clearly recognized and absolutely specific lesions? This is a point of much importance, as upon it hinges, if in any manner, the connection between the two diseases. Now we know that early in its course syphilis shows itself by morbid changes which are characteristic, but later on it affects the whole organism, visibly impairs nutrition, and retards functions in a manner that is not recognizable as being clearly syphilitic. It may also and does modify to a certain degree intercurrent diseases. This power of the syphilitic dyscrasia shows itself in a general condition of ill health; the blood-making function is interfered with, the general nutrition of the body is lowered. In this state the organism becomes susceptible of morbid and debilitating influences, and diseases are quickly engrafted on it, and these run a severe course. Now it appears clear to my mind that if there is any connection etiologically between these two diseases it consists in this power which syphilis has of inducing a depraved condition of the organism, in which the rachitic dyscrasia may be developed. Specifically and essentially there is no connection, as the condition may arise in an organism which has become lowered by any chronic disease. This view of the connection between the two diseases has the support of other facts. Thus we usually find that where rachitis is developed in a syphilitic subject, it appears about the same time as it does in a non-syphilitic subject. Parrot's case is a marked example; a child is born syphilitic, lives to be ten months old, and is rachitic. The same condition might have developed if the child was not syphilitic.

There is another point worthy of mention; namely, the result of treatment. Now it is well known what power specific treatment has over syphilitic lesions; and it is fair to infer that if rachitis was due to syphilis, the treatment of the latter disease would cure the former. Such is not the case, however, as the rachitic condition is rendered worse by mercurial treatment. This latter fact is very important, as it shows clearly that there is a widely different condition in the two diseases. After these considerations, then, we are prepared to admit *that syphilis may be one of the causes of rickets, but that there is no specific relation between the two diseases; that syphilis may remotely cause rickets by its lowering effects upon the organism, in the same manner that any adynamic influence might produce the same effect.*

It might be suggested to those who may meet the coincidence of rickets in a syphilitic subject, that it is essential to trace the causes of the latter disease by minute inquiry into the recent history of the child, and not to assume that because at some anterior date it was syphilitic, necessarily its rickets was the result of that.

Iodoform in Venereal Ulcers.

Dr. F. W. Godon writes to the *Pacific Medical and Surgical Journal*, 1875:—

I prefer it to any other method of treatment. By its use a chancroid is successfully as well as painlessly cured. My treatment of chancroids has been as follows, and it has invariably proved successful: To the chancroid when first seen, if it be simple, small, and its secretions slight, powdered Iodoform is applied morning and night. A thorough washing of the penis with warm water and white castile soap is ordered, and then the Iodoform applied in powder. If Iodoform be used suspended in some menstruum, a dossil of lint is dipped into the mixture and applied to the ulcer. I much prefer to apply the remedy in powder, as it adheres to the surface to which it is applied, while if used suspended in glycerin, it is very apt to slip out of place, especially in cases of chancroid of the vulva. The following cases will serve to demonstrate its efficiency in my hands:—

Case I. Edw. R. called upon me August 14th, and showed me a chancroid contracted three weeks ago, situated upon the corona glandis. I cauterized it with nitric acid, and on the following morning dusted Iodoform over its surface, and ordered the application to be continued daily. Patient perfectly well on the 21st of the month.

Case II. Chas. Erwin, aged 49, showed me a simple chancroid of medium size situated upon the meatus. Iodoform applied in powder, and the patient left my care perfectly well in nine days.

Case III. Marie C., aged 19, on September 15th showed me a simple chancroid upon the fourchette. Iodoform applied daily, and on the 22d the patient was entirely cured.

Case IV. Cornelia P., aged 27, on Sept. 20th, consulted me for two simple chancroids, one situated in front of the meatus, and the other in the fourchette, both of small size and with a slight secretion. The patient had first noticed the sores about three weeks before consulting me. Iodoform applied daily in powder, and cure effected on the 30th.

Case V. Michael D., aged 27, consulted me September 29. Has had for more than a month a number of chancroids, some on the prepuce and others on the glans. Their size is moderate, and they secrete abundantly. The patient had been under the care of a practitioner in the city, by whom he had been treated by washes. The ulcerations had remained refractory, and were now disposed to burrow. A bubo tended to develop in the fold of the left groin, and had become already very painful. The chancroids were immediately cauterized by nitric acid, and an ointment composed of 2 grammes of Iodoform to 30 grammes lard, applied to the adenitis. The chancroids on the following day were dressed with Iodoform powder, and the patient, on the 14th of October, left me cured.

With the presentation of these five cases treated by means of Iodoform, which have occurred in my recent practice, and from observations and notes of a very large number of hospital cases where the same course of treatment was pursued, I shall conclude—

1. That Iodoform is a therapeutic agent producing more certainly, and more promptly than all others ordinarily employed, the cicatrization of syphilitic ulceration in general.

2. That in the treatment of chancroids, Iodoform is in some manner a specific by the promptitude with which it produces cicatrization, and this too without pain.

3. That Iodoform in the treatment of simple or virulent buboes, can be employed in the form of an ointment as a resolvent during the early stage, with more success than any other agent.

4. Iodoform acts as a topical agent, and also as a loco-anæsthetic. That by its employment in these cases it effects a cure without producing any pain, obviating the dread of burning and the attendant pain which deter so many unfortunates from applying immediately to the surgeon for relief. That the rapid cicatrization which it causes is owing to the simplicity of the dressing, which does not irritate the diseased parts, to the absortion of the secretions by the Iodoform powder, to the antiseptic properties of the medicament, and to the presence of iodine, which acts favorably on venereal ulcerations in general.

On Syphilitic Paralysis.

In a lecture reported in the *Irish Hospital Gazette*, January 1, 1875, Prof. WM. MOORE, M. D., T. K. Q. C. P. I., exhibited a case and made the following remarks:—

Ann N——, aged 23, was admitted into this hospital on the 7th December, suffering from paralysis. The history of her case is as follows: About two years ago the patient contracted syphilis, which was followed by buboes, and she then had slight sore throat, but she never had any eruption on her skin. A year after that she came into this hospital complaining of pains about the knee-joint. She was afterwards admitted into St. Mark's Hospital, where she was treated for ptosis of the left eyelid. About a month ago she had a "fit," which she describes in this way: She was completely unconscious, but only for a very short time, not more than ten or fifteen minutes, when she regained perfect consciousness. She was told she did not scream or make any noise, nor did she froth at the mouth, or bite her tongue; she had no drowsiness or dullness for the rest of that day, but on recovering from this fit she had loss of power of the left leg, and in a short time after she also lost the power of the right arm.

On admission into this hospital there was visible deformity of the face and loss of power of the right arm and right leg, and on making a careful examination we found that she had complete deafness of the left ear, but no discharge from the ear. She also told us that she had at times complete loss of taste, which the nurse says she exhibited on Saturday last, when she emptied the entire salt cellar into her beef tea, but did not taste it. She complains of pain when you touch her right cheek, but as far as we can see, she has no hyperæsthesia of the left side. She suffers from constant headache and pain at the nape of the neck, which she says is persistent, especially when she sits up. She also complained of pain in the right temple. When you look her in the face you are struck with the evident facial paralysis of the right side. At the same time she has not perfect power over the left side of the face, for there is drooping of the angle of the left side of the mouth, and there is also partial ptosis of the left lid. She also has a peculiar condition of the pupils. There is comparative contraction of the left pupil, but it takes an oval shape, the long axis being from above downward. When you look at the other eye you find partial ptosis and a permanently dilated condition of the right pupil; there is also loss of power of the sixth nerve, for when she opens both eyes they roll outwards, so that she has double divergent strabismus. She tells us that when she first got this attack her speech was affected, she reversed the names of her friends, called things by wrong names, and in addition she has still remarkable amnesia. She is positive that she sees double when she looks with both eyes at things removed a few yards distant; but if she closes one eye the object appears single. When you place her in the upright position she complains of giddiness, and is unable to make any progress, and if you place her heels together and make her close her eyes, she reels and staggers. She complains of pains over the right shoulder joint, but there is no loss of sensation down the right arm; yet she has little power of prehension, and cannot close her hand or raise the arm.

The patient's father or mother did not die of any paralytic affection, and there is no history, as far as we can gather, of paralysis. Therefore, taking into account her past career, we can trace this disease to a syphilitic taint. Now I wish to show you how this form of paralysis differs from a case of ordinary hemiplegia, in which we usually have no complaints of constant pain over the forehead, or in either temple, or at the nape of the neck; nor have we double ptosis, or double divergent strabismus, or double facial paralysis. Some time ago this girl had more complete facial paralysis; and she had complete ptosis of the left lid; now she can raise it a little, and the left side of the face has regained its power to a great extent.

The hemiplegia is not perfect, inasmuch as she has a certain amount of power of both the right arm and leg, but, with the exception of the right knee-joint, the sensibility of the extremities is unaffected; in fact the application of electro-galvanism was more sensibly felt on the affected side. There is no appreciable difference in the temperature on either side of the head, no sugar or albumen in the urine, and her pulse is 88 in the recumbent, 98 in the upright position.

And now with regard to the "fit" which preceded the hemiplegia. As you are aware, epileptiform seizures may be symptomatic of what we call true epilepsy, or they may occur during the course of diathetic diseases, or they may arise from specific causes as syphilis, and in these various forms of "fits" there are symptomatic differences which should deserve your attention. For instance, this patient says she suddenly swooned and became unconscious, but her friends told her she did not scream, or froth at the mouth, or bite her tongue, nor did she remain in a dreamy, somnolent state for hours. On the contrary, she recovered consciousness within ten or fifteen minutes. Now this, in my mind, is precisely the character of a fit of syphilitic epilepsy, which, in this instance, was followed by aphasia and right hemiplegia.

I have here merely called your attention to the objective appearances of the eyes and their appendages, but Mr. Wilson has kindly informed me that when the patient was under his care the fundus of the eye was rather paler than normal, and the arteries small, but the veins congested.

You may naturally ask me what I believe to be the pathology of the present case. I consider that this girl is suffering from syphilomata or gummatous formations, engaging the meninges of the brain, the second, third, sixth and seventh nerves, and probably the cerebellum. I say engaging the meninges, from the presence of the epileptiform seizures she has had, and that the nerves I have mentioned are implicated, the imperfect vision, and the various phases of paralysis of the eye and face, go to prove; whilst the giddiness, nausea, loss of vision, and ataxic, tottering, intoxicated mode of walking, would point to implication of the cerebellum. Still we have the hemiplegia to account for, which may be due to syphilitic deposit in the left corpus striatum or optic thalamus, or to that progressive softening of these great central commissures which we find attendant on syphilitic disease of the brain.

These syphilitic gummy tumors occupy various parts of the brain; they are sometimes isolated and surrounded by a fibrous zone or capsule, in other cases they are grouped together. They vary in size from a pea to a plum; their color is usually whitish or yellowish, sometimes pinkish, their consistence firm in some cases, soft and cheesy in others; they occupy principally the periphery of the encephalon, but I have seen them in the various parts of the brain I have already mentioned.

Gentlemen, I have no hesitation in saying that this case is one of surpassing interest, and would entail a range of clinical medicine and pathology which it would be quite out of my power to place before you within the compass of one Clinical Lecture. I have pointed out to you, as far as time has permitted, the more salient symptoms and physical signs present, and now we must proceed to say a few words about the treatment.

I believe there can be a good deal done by treatment for this girl; though she may have a repetition of the convulsive fit. If she had had a mere passing convulsion, which had passed off and left no paralysis behind, it would vary our treatment to a certain extent. At present she is on the mercurial treatment, and gets 5 grains of Plummer's pill, and 8 grain doses each of iodide of potassium and bromide of potassium, three times daily. The reason I put her on the mercurial treatment, when there is so much said about the treatment of tertiary syphilis by iodide of potassium alone, is this:—I believe that in this case unmistakable syphiloma exists about the base of the brain. I believe that syphilitic deposit, up to a certain point, will give rise to a kind of surrounding effusion, an exudation which takes place from the presence of this gummatous matter; this effusion, in most cases, iodide of potassium will resolve; but I believe we have no treatment whatever for dispersing these true gummata but mercury. I think it is immaterial which preparation you exhibit.

Deafness from Syphilis.

The London *Medical Times and Gazette*, January 16, 1875, contains some observations on this lesion from a clinic in the London Hospital by Mr. HUTCHINSON:—

The case which elicited the remarks was that of a young woman, aged seventeen, who exhibited the teeth and physiognomy characteristic of inherited syphilis. She had, in the course of about two months, become absolutely deaf in both ears. There had been no otorrhœa and no pain, but tinnitus had been very troublesome.

Mr. Hutchinson remarked that the case was a good example of the more severe form of deafness from hereditary syphilis. He had seldom known the hearing lost so rapidly, but in all other respects the facts of the case fitted exactly with those of many others.

The failure of hearing is usually somewhat sudden, and is unattended by any evidence of inflammation; the patient has neither pain nor discharge, and otoscopic inspection usually reveals nothing abnormal. He believed that the opinion which he had first advanced, as to the disease being connected with the nerve itself, was the correct one. In the case of the eye it is not at all uncommon for hereditosyphilitic patients to become almost blind from choroiditis disseminata; and in some comparatively rare cases almost complete amaurosis is produced by neuritis of the optic nerves. Both these lesions are most distinctly and positively to be associated with inherited syphilis. In the cases in which they occur, very usually there is a history of an attack of keratitis having gone before; and in both the function of sight is either much damaged or wholly lost without the occurrence of any pain or external evidence of inflammation. It is probable that parallel diseases occur in connection with the nerve apparatus of hearing. Opportunities for obtaining positive knowledge by post-mortem examination have as yet not occurred. The subjects of inherited syphilis who have advanced past the period of childhood are, Mr. Hutchinson added, remarkably tenacious of life. He had only on two or three occasions had the opportunity of making a post-mortem in such a case, and in none of these was the symptom of deafness present. His belief in the nerve origin of the deafness must therefore, he said, be considered for the present as a matter of inference, and not of proof; but the facts certainly point very clearly in that direction. As regards treatment, Mr. Hutchinson stated that he was sorry to be obliged to admit that the knowledge of the true cause of the malady does not help much. In a majority of cases no very definite improvement takes place under either iodides or mercurials. In some cases—a minority—the patients become absolutely and permanently deaf; in others the function is very much damaged; and in a third group almost perfect recovery results. There is not usually much reason for believing that the recovery is in connection with the treatment; still it is probably the safest plan to use mercurials, but they should be employed with careful attention to the patient's health, so that no depression may occur.

The first description of this form of deafness, and the first statement as to its connection with inherited syphilis, is, we believe, that given by Mr. Hutchinson in 1863. In Mr. Hinton's edition of Toynbee's work on Diseases of the Ear, a very interesting note respecting it has been introduced. Mr. Hinton states that at Guy's Hospital, of his aural patients one in twenty is affected with it, that it usually makes its appearance between the tenth and sixteenth years, and that the great majority of the cases which he has seen have been in females. He adds, " Patients suffering from this disease may, as a rule, at least when young, be at once distinguished by the *amount of deafness which they exhibit.* I know no other affection except fever which, in a person under twenty, brings on a deafness so rapid and so nearly complete. In the course of a few weeks a girl previously hearing well will, without pain or known cause, become unable to distinguish words." It will be seen that this latter statement fits exactly with the facts of the case which we have recorded.

Syphilitic Hemiplegia.

The followinging case, given in the Cincinnati *Lancet and Observer*, March, 1875, by Dr. J. P. GREEN illustrates this disease :—

Mrs. H., æt. 50; born in Ohio; by occupation a domestic, and a widow for twelve years. On the 12th of December, 1872, I found this patient suffering from almost complete right hemiplegia. The paralysis of motion was nearly complete; the only parts not involved were the fingers, all of which could be slightly moved. Sensation was not diminished; on the contrary, it appeared in some places to be somewhat exalted, this being especially the case on the anterior portions of the arm and forearm. The muscles were not perceptibly atrophied. There was no facial paralysis; but there was an erythematous blush covering the entire left cheek, which was much brighter sometimes than at others, and occasionally would almost entirely disappear for a few days. There was no impairment of speech, and the special senses were intact. Both tibiæ were very much enlarged, tender and painful, the pain being invariably aggravated at night. There was also a prominent enlargement of the lower third of left ulna. The post-cervical and inguinal glands were enlarged and indurated. The general health was not impaired. The paralysis had existed for five months; had come on gradually, and been preceded and attended by vertigo and headache. The mind was not and had not been affected. The right eye presented well-marked posterior synechia. The patient remembered to have had an eruption on her arms, breast and back many years ago, and was at one time troubled with sore throat, she thought about the time she had the breaking out on the skin. I could obtain no history of any initial lesion, and the woman was said to have always sustained an excellent reputation.

The symptoms were considered sufficiently unequivocal to warrant a conclusion that the malady was the effect of a specific cause; and accordingly she was ordered potass. iodid. grs. xxx., three times a day. The stomach at first rejected the medicine; but by decreasing the dose, and giving it half an hour after meals, it was soon well borne, and after two weeks such a degree of tolerance was established that grs. xl. could be taken on an empty stomach without inconvenience; and after that time she got the same dose before each meal until she was finally discharged. There was no improvement for nearly two weeks; about which time she began to be able to move the arm and to elevate the shoulder, and shortly afterward, some control over the muscles of the lower extremities was noticed. After this the recovery was slow but uninterrupted. At the end of a month she could walk with a cane, and in six weeks could walk across the room without help. At the end of eight weeks the treatment was temporarily suspended, on account of a severe cold brought on by imprudent exposure. At that time she felt as strong in the affected side as ever; but there was a slight limp in her walking which never entirely disappeared, although the treatment was afterward resumed and continued three or four weeks.

She died during the past summer of acute dysentery, having never experienced any return of specific symptoms.

On the Use of Iodide of Potassium in Syphilis.

Dr Joseph R. Beck, of Fort Wayne, Indiana, writes to the Philadelphia *Medical Times* of March 13, 1875:—

I do not now use, nor have I for a long time past made use of, mercurials in the treatment of syphilis. The fact is, I am entirely satisfied that in the treatment of any phase of syphilitic disease mercurials do harm. This sweeping denunciation of so ancient a remedy in this disease as mercury makes it well for me to state that I *do* use mercurials in *some* diseases, although *never* in syphilis.

But why do I not employ mercury in the treatment of syphilis, particularly since it has proved efficacious in the hands of so many in causing the symptoms of that disease to disappear very quickly indeed? Well, I reply, that very fact constitutes my reason. It *does* act quickly, entirely too rapidly to be in the least degree reliable, in my estimation. We are well aware of the fact that under the use of mercurials secondary manifestations may be rapidly dissipated; and we have been enabled, owing to this fact, to discharge our patients in a few weeks without spot or blemish. But, alas, for this treatment! we have in *every case* only succeeded in *masking* the disease, and, after another suitably long period of fermentation, we will surely have to deal with its tertiary manifestations. I use very emphatic language here, and words which it is impossible to mistake the purport of; but I close this item by the still stronger assertion, *that every case of secondary syphilis which has been successfully (?) treated by mercurials will reappear as tertiary syphilis, if the patient lives long enough.* I feel warranted also in saying in this connection that many a case of mercurially-cured secondary syphilis passes from beneath our unskillful hands to the grave, labeled in the mortuary list as a victim to some intercurrent disease, when, if the facts could be known, the said intercurrent disease would show itself to be simply and truly an obscure invasion of tertiary syphilis. I have known such cases to occur in the practice of some of my medical friends. Syphilis, either secondary or tertiary, cannot be treated to a *permanent* cure in a few weeks or a few months. A radical, permanent cure requires fully a year of careful treatment, and often more; and I feel very well satisfied if I can dismiss a tertiary patient from treatment without a mark in eighteen months.

I now give the relation of the history of two cases, selected from a large number, because they are, to a great extent, typical illustrations of the facts which I have just set forth.

Case I. In November, 1871, I was invited by D. A , resident in this city, and, at the time, the patient of another practitioner of the same place, to visit him. I did so, and found him in a horrible condition. After a short conversation, he requested me to take charge of his case. To this request I acceded, stipulating only that he should at once discharge his former medical adviser, owing to the fact that, although a professed regular, I would not consult with him. This he at once did, and I took the case, promising him at the time a perfect and permanent cure. He was at the time confined to bed, being very anæmic and exceedingly weak. He had been steadily mercurialized by his adviser during a period of nearly three years, and what tissual destruction the disease had not wrought was most ably supplemented by the ill-advised remedy. Almost the whole of the right buttock had been destroyed by ulceration, and the whole of the muscular portion of the left arm from the elbow to the axilla and acromion process, with a very slight exception, had disappeared in the same way. There existed three gummatous tumors on the skull, and this was the extent of the damage. A more unpromising case could not well be imagined, especially as the patient was a man of notoriously bad habits.

I treated him in the manner I shall hereafter relate, from November, 1871, until February 1, 1873, a period of fifteen months, and he is now almost as perfect physically as he was prior to the contraction of his disease. This case had its origin in what certain self-so-called leaders in syphilography are pleased to denominate a "chancroid." Excepting the annoyance attendant upon a very profuse ptyalism, occasioned by the mercury yet remaining in the economy, the case began at once to improve, and, although the habits of the patient have not been such as I desired in every respect, yet the progress to a cure was very rapid, and pushed along without the least hindrance. *This was a perfect, not a speedy cure.*

Case II. On the 1st of August, 1874, A. K. R. came from middle Ohio, at the instance of a mutual friend, to consult me in reference to his case. It was one of tertiary syphilis, and its history began as far back as 1851. In the spring of that year he contracted a soft sore (some persons persist in calling them chancroids), which, after steadily progressing for about three weeks, finally healed under treatment. In 1853 he was attacked by all the usual secondary symptoms of the disease, which, however, gave way in about two months under the exhibition of mercury, and his medical adviser pronounced him cured. In August, 1857, he experienced a return of the malady, but this time in its tertiary form; and from that time until I took charge of the case, covering a period of seventeen years, he was never for one moment free from the tortures incident to the disease.

When I examined him, after entirely stripping him, I found him totally bald, with eleven gummata on his skull, and numbers of such tumors on other parts of the body; indeed, there was not a superficial bone in his body but what presented more or less of these tumors in all stages. Even the scapulæ were so affected. Besides all this, the whole palmar surface of the left hand presented one open ulcer, and another large destructive ulceration was located on his right hip. In addition to all these *minor* matters, the patient *presented very apparent symptoms of commencing paralysis of the lower extremities, all signs of which disappeared early in the treatment.* He was always a man of good habits, but since the last invasion of the disease he has had such an excruciating head-pain all the time that he resorted to the use of opiates for relief, and became a confirmed opium-taker.

I promised this patient a *certain* though not a *speedy* cure. He has had my usual treatment for six months now, and is almost entirely well; but I shall continue to treat the case for another six months, in the manner hereinafter indicated, unless in the interval iodism is to some extent induced, in which event he shall be *perfectly and permanently cured.*

In treating syphilis, after examination, I prescribe the following: Iodide of potassium, 7 drachms; ammonia-citrate of iron, 4 drachms; distilled water, 2 fluidounces; syrup of orange-peel, peppermint-water, of each 3 fluidounces. Make into a solution, and give a tablespoonful before each meal. Also, Fowler's solution of arsenic, 3 fluidrachms; simple syrup, orange-flower water, of each 4 fluidounces. Make a solution, and give a teaspoonful after each meal. If some anæmia be present, which is frequently the case, especially if the patients have been mercurialized, I order, in addition to the above: Sulphate of quinia, 1 drachm; reduced iron (Quevenne's), 2 drachms; extract of gentian, sufficient. Make a mass, divide into sixty pills, and give one every three hours. Also, the following: Cod-liver oil, 7 fluidounces; fluid extract of valerian, 1 fluidounce. Shake the bottle, and give a tablespoonful every three hours. If, in addition to the ordinary constitutional disturbances, I have to deal with extensive ulcerations, I order hydrate of chloral, 1 ounce; distilled water 2 fluidounces. Mix, and brush over the ulcerations thoroughly three or four time daily. If the ulcerations are situated upon dependent portions of the body, I support them by adhesive straps, which should be frequently changed. Any othe symptoms which may require urgent attention should be met "secundum artem."

Now, the foregoing constitute my *first* prescriptions only. In each of the su ceeding prescriptions there should be added successively one drachm of the iodi of potassium to its formula, and half a drop to the *dose* of the Fowler's solution the arsenical formula. The iodide should then be carried up drachm after drachm strength with each successive prescription, until we reach twenty or twenty-fi drachms' strength to the formula, *or as much more as is necessary*, taking care order the increase made only with each succeeding fresh prescription. The strength the arsenical solution is to be carried up seriatim, as stated, until a dose of five drops the Fowler's solution is reached, at which point I hold the patient until slight sym toms of the constitutional poisonous action of the drug are developed. The arsen is then finally omitted as an adjuvant. The iodide, however, I carry up, in eve increasing quantity, until symptoms of decided iodism are induced, when its admini tration is ordered stopped for a week; then it is again commenced, and if the iodism again shortly ensues, I can most confidently discharge my patient, perfectly and permanently cured, with the poison of syphilis, and, let me add, that of mercury, forever eradicated from the system.

In order to test the truth of the latter assertion, I have been accustomed to test every patient, in about a year after all treatment had ceased, with ten-grain doses of the iodide of potassium; and the test has invariably produced profuse iodism before one drachm of the drug has been consumed in these small doses.

The Non-Mercurial Treatment of Syphilis.

Dr. W. A. Hardaway, of St. Louis, says in the St. Louis *Clinical Record*, May, 1875 :—

The following two cases, selected at random from a number of others, will afford an illustrative text for the brief consideration of an ever interesting, and, when we remember its vital importance, but little understood subject:

D. J., aged nineteen, was exposed, according to his statement, on June 10, 1870, and consulted me somewhat two weeks later for an indurated sore upon the under surface of the prepuce, near the frænum. The diagnosis of a chancre (initial lesion of syphilis) was made, which the subsequent evolution of the symptoms fully corroborated. The ulcer healed kindly under simple dressings, although induration at its seat and in the neighboring ganglia persisted for a length of time afterward. The secondary symptoms were ushered in about six weeks later with very little prodromic disturbance. The secondary lesions consisted of a roseolous eruption upon the chest and abdomen, sore throat and engorgement of the cervical ganglia. Mucous patches at the angle of the mouth, and pustulæ upon the hairy scalp, made their appearance later on in the course of the malady. The treatment consisted in the administration of tonics, a preparation of iron, frequent baths, abstinence from tobacco and spirits, and otherwise the maintenance of a regular life. Mercury was not resorted to during the whole course of the treatment. The patient made a rapid recovery, and in three months after the first outbreak of the secondary symptoms was discharged. It will be borne in mind that after the eruption of roseola, there supervened, at a later date, mucous patches, etc. This constituted all there was of the nature of a relapse, although, in fact, it was but the normal evolution of symptoms. There was considerable enlargement of the submaxillary gland on the left side, which persisted for at least six months after the disappearance of all other lesions. Up to this time the patient—and he has been constantly under my observation—has had no return of his trouble.

M. C., aged twenty-five, clerk, consulted me in the winter of 1873 for three ulcers upon the inner surface of the prepuce, which appeared, as he stated, about six days after exposure. I confess that I was in much doubt as to the diagnosis, because of the general characteristics of the sores. Moreover, induration was altogether absent at the base of the ulcers and in the ganglia. The patient had, before seeing me, touched the sores with lunar caustic, which had served likewise to obscure the diagnosis. Finally, however, the question was, unfortunately for the patient's sake, fully cleared up by the supervention of well-marked secondary symptoms, preceded by syphilitic fever, headache, and the usual prodromata.

The initial secondary lesions consisted of a papular erythema upon the chest and abdomen, sore throat and "scabs" in the hair. The erythema disappeared in three or four weeks after its inception, and, so far as any continuous trouble was concerned, there was a short period of quiescence. The pustules in the scalp, the sore throat, and the cervical engorgement, still persisted. At a later date I discovered mucous patches upon the scrotum and in the mouth, and an obstinate palmar psoriasis.

The man's general health was good, and, consequently, aside from local treatment, nitrate of silver spray to the throat, etc., no other medication was instituted. The squamous syphilide upon the hand, and the mucous patches upon the scrotum were the most intractable of his troubles; but these, likewise, in the course of a few months, entirely disappeared. He has since had no relapse, and, with my sanction, contemplates matrimony. I have made no attempt to present a minute or detailed account of these cases, but I merely introduce them as a text to the conclusions from the more extended experiences of other observers.

In the large majority of cases of syphilis, I see no indications for the use of mercury; and while I am very far from denying the marked influence of mercurial preparations over this disease, still I am thoroughly convinced of the fact that syphilis forms no exception to the rule in other zymotic affections, viz: their self-limitation. In certain forms of the disease, I give mercury in spite of the syphilis, or, in other words, I am in the habit of availing myself of the fully conceded specific properties of the drug to stop the ravages of the malady when it threatens the destruction of tissue; but it is always under protest, and its administration is withdrawn at the earliest possible moment. I am aware that the question will very naturally arise: Why, if mercury has this specific power over syphilitic manifestations, is not its administration the most judicious thing that could be done? would answer in this way: First. Because, if syphilis, or any other disease, i capable of being cured by the unaided powers of nature, I can see no possibl ground for recourse to drugs. Second. Because I believe there are reasons fo regarding the long-continued use of so potent an agent as tending to produce del terious effects.

In regard to the supposed deleterious effects of mercury upon the system, I wou say that I am not one of the class who indulge in a holy horror of the remedy, f I believe, with Niemeyer, that if mercury were capable of doing the immense m chief with which it is charged, we would daily witness the evidence of its malis influence in the thousands of people who, as children, have been literally dos with calomel, etc., for various infantile affections. Still, I do claim that mercu as a rule, is not only uncalled for, but pernicious in its effects when administered syphilis. We know that mercury will produce the most serious morbid alteratio in the economy, wonderfully like those engendered by the disease which it is giv to cure, and it does not seem rational to prescribe such an agent for months in grave blood dyscrasia.

Many years ago, when mercury was abused, syphilis was a terrible scourge; no when it is resorted to in a more judicious manner, we find it in a comparativ mild form. We hear every day, now, the most decided expressions of opini from most eminent authority, as to a belief in the curability of the disease, wher it was formerly considered incurable. The explanation of this lies in the facts j mentioned.

We now no longer resort to anti-phlogistics for pneumonia and other inflam tions, because experience has proven their danger and inutility; we make no atte to cut short essentially cyclical affections. But do we hamper nature in her eff to relieve herself? The most careful modern researches assure us that syph runs a certain definite course, and exhibits a marked tendency to self-limitation, unless interfered with by art. Variola offers us an example of an acute infectious disease expending itself in a few days; syphilis is a chronic infectious disease, which takes as many months to complete its regular evolutions—otherwise there are no special indications for the treatment of the two maladies to be drawn from the length of time occupied by the progress of either.

Syphilitic Nervous Disease.

In the *Practitioner* for May, 1875, Dr. J. Dreschfeld reports a number of cases which are of clinical interest. We extract two of them and his closing remarks:—

Mary Ellen W., aged 30, single, dressmaker, came to the out-patient room September 15, 1874, complaining of intense headache, sleeplessness, and emotional disturbances. I prescribed bromide of potassium, and saw the patient again on September 22, when, on examining the case more carefully, I came to the conclusion that it was a case of syphilitic nervous disease. Her history is as follows: When a child she suffered from scrofulous affections of the glands of the neck, which left numerous pseudo-keloid cicatrices. Three years ago she suffered from an ulcerated throat and inflammation of the right eye; nine months ago her cerebral symptoms came on in the form of pain in the back of head, sleeplessness, loss of memory, mental depression, delusions and immoderate fits of crying; six months ago she began to stammer, and at times could not pronounce certain letters; she also suffered for some time from obstinate ozæna. Her eyesight began to fail. Constipation. She was in no way hysterical.

Patient of middle stature; no periosteal nodes on the head or body. Right iris presents marked synechiæ; fundus of both eyes (examined by Mr. Windsor) normal; no facial paralysis; no paralysis of tongue; speech thick and hesitating; defect on right tonsil. Physical examination of internal organs reveals nothing abnormal. No disturbance of motion or sensation in limbs.

She was ordered now 10-grain doses of potassium iodide, and began to improve; after six weeks her symptoms had all very much improved, except the speech. During November and December, 1874, she had a relapse of her symptoms, though the headache did not reappear. The dose of potassium iodide was increased to 20 grains, and she steadily improved again, and became much more cheerful. In the beginning of this year she left off taking medicine, and has had no relapse so far.

Ellen M., aged 35, married, no children; came to the Infirmary in the beginning of March. Twelve years ago suffered from rash and sore throat; two years ago had ulcers on tibia and forehead, which have left deep cicatrices. Since August, 1874, has suffered from pain in head. In January, 1875, pain in the right side of face came on, which became so severe that she had several teeth extracted, without any relief; soon after there was paralysis of right side of face, and she began to squint and to suffer from double vision, the pain in the right side of face still continuing.

Patient looks cachectic, and besides the above-mentioned cicatrices there is on the right side internal squint, diplopia, especially when looking downwards, partial facial paralysis, and trigeminal neuralgia (the *points douloureux* well marked); the paralyzed muscles of right face react well to the constant current, not so well to the induced current; the tongue slightly turned to the left; no ptosis; pupils equal and reacting to light. The case is improving under the use of pot. iod.

The history, but particularly the peculiar affection of the cranial nerves, stamps this case also as one of syphilis. Braus collected one hundred cases of cerebral syphilis, in twenty-seven of which the facial nerve is stated to have been affected; and cases showing the combination of the paralysis of the external rectus with that of the facial nerve are given by Broadbent and others. The lesion in this case must be situated in the right base of the brain, causing, by compression, irritation of the fifth nerve (which in these cases is generally only of transient character), and paralysis of the sixth and seventh nerve (though there is double vision, an affection of the fourth nerve could not definitely be made out, owing to the non-parallelism of the eyes), and in the absence of other symptoms pointing to a gummatous tumor in the brain itself. The pathological product is most likely a chronic inflammatory thickening of the membranes or cranial bones near the left crus cerebri.

If now for a moment we consider the different aids we have in diagnosing the syphilitic nature of a nervous disease, we have the following:

1. Age of patient. The age of persons affected with syphilitic nervous disease ranges between twenty-five and forty; out of ninety-six cases collected by Braus, sixty were of patients between twenty and forty years old; and the cases given by Broadbent, Buzzard, and others exhibit the same proportions.

2. A syphilitic history. We have here to bear in mind that it is often difficult, especially in women, to trace such a history; that often when the syphilitic virus selects for its locality the nervous system, there are few, if any, secondary symptoms; while, on the other hand, nervous troubles coming on in a syphilitic patient may be simply due to a coincidence. On looking over many recorded cases, I find that certain forms of syphilitic nervous disease are much oftener preceded by well-marked secondary symptoms than others: this, for instance, is true for syphilitic epilepsy and the more acute cases of meningitis which come on soon after infection.

3. Multiplicity of lesion. Nervous symptoms which can only be accounted for by the assumption of separate pathological products situated in different parts of the nervous system are almost always due to syphilis.

4. Absence of other causes. This applies particularly to the paralysis of the different cranial nerves, and to sudden attacks of hemiplegia in young persons, in the absence of any cardiac or renal troubles.

5. Influence of anti-syphilitic treatment. In a great many cases, especially where the course of the nervous disease is acute, and where the patient has not previously undergone an anti-syphilitic treatment, the effects of the iodide and the mercury are very marked. In the more chronic cases, however, where the syphilitic deposit has itself undergone degenerative changes, and has established secondary changes in the surrounding nerve-matter, the treatment will of necessity be of little avail.

A Case of Syphilitic Disease of the Auditory Nerves.

Dr. D. B. John Roosa, Professor of Diseases of the Eye and Ear in the University of the city of New York, gives the subjoined case in the *Archives of Dermatology*, April, 1875:—

Mr. X., æt. 37, was sent to me on October 28, 1874, on account of a great impairment of hearing, for which his physician was unable to find any adequate objective symptoms. The patient was a healthy-looking man, and gave the following history: Five weeks ago he had become very suddenly, "in one day," very hard of hearing; this loss of hearing was accompanied by very considerable noise in the ears. Since then he has been getting worse, until he cannot carry on his business, which is that of an insurance broker, and he voluntarily remarks that he is much worse at night.

On testing the hearing power, it is found that the watch is not heard at all on the right side, ($\frac{0}{40}''$) and only when laid upon the left auricle ($\frac{1}{40}''$); the tuning fork is heard more distinctly in the ear on which the watch is heard. The pharynx is granular, and secreting in excess. The drum-heads look well, except that the light spots are small. Air enters both tympanic cavities by the catheter and Politzer's method, but no improvement in hearing power results from the inflation of the ears.

The *tuning fork* and the negative results of the treatment of the middle ear, which had been carried on by the surgeon who sent the patient to me, enabled me to diagnosticate this as a nerve lesion; but the cause was not quite clear. I observed an eruption, papular and diffuse in character, on the palms of the hands and the wrists, and that the scalp looked as if the hair had fallen out; but as the wife of the patient was in the consulting room, and eagerly watching the examination, I postponed further inquiries until the next day, when the patient re-appearing alone, I asked him "when he had a chancre?" or, "when he had a venereal disease?" He replied, in March, '74; further inquiry elicited alopecia in July, and an eruption for the last few weeks. The specific character of the leison was then plain, and I put him upon Mercurial Inunction and Iodide of Potassium, under which he steadily recovered his hearing power, and lost the tinnitus aurium. I saw him again on December 28, when his hearing power was expressed by the fraction $R\frac{\text{Pressed}}{40''}L\frac{6}{40}$; since then I am informed (in February, '75) by his physican, that he had still greatly improved. If the patient had not been a person of excellent reputation as to marital fidelity, his own physician, from whom he had concealed his lapse from virtue and its resulting chancre, would have discovered the cause of his loss of hearing.

The exact seat of the lesion, that is, whether the trunk of the nerve or its expansion into the cochlea, can only be conjectured. That the lesion was not a periostitis of the *meatus auditorius internus* may be concluded, I think, from the absence of pain. The shortness of the time from the initial lesion to the appearance of the impaired hearing, also argues against a gummy tumor. Serious exudation between the fibres of the nerve or upon its thread-like expansion in the cochlea, seems to me a probable lesion in this case.

Syphilitic Intra-cranial Disease.

The following typical case is recorded in the *American Journal of Medical Science*, April, 1875, by C. ELLERY STEDMAN, M. D., and ROBERT T. EDES, M. D., of Boston:—

A. B., aged thirty-two, single, yeoman, U. S. Navy, entered Boston City Hospital 24th October, 1871, in the service of Dr. C. E. Stedman. The hospital record made by Dr. C. E. Wing, then house physician, is as follows: Family history rather obscure. He entered the navy thirteen years ago, and soon contracted gonorrhœa, which he has had several times. He does not know that he has had a sore on the penis, but has noticed abrasions at times, and thinks he may have had syphilis; was salivated ten years ago when he had yellow fever, and has taken no mercury since. He thinks he recovered perfectly from the results, but the gums now recede much from the teeth; is rather bald, but never had any particular falling out of hair, and never noticed any eruption on skin. There are small hard glands in neck and groin, and another small one at the left elbow, none of them tender. Fifteen months ago he had ulcers in the throat, which were "burned with caustic;" these returned a year ago, when he was told he had syphilis, and took iodide of potass. with relief. Six months ago he began to have "trouble in chewing" on the right side of jaw; a month later was taken with pain and numbness in right side of face and about right eye, and had three teeth extracted without relief; one month afterward "eye became affected." Then went to Rio Janeiro in a man-of-war, where, on account of increase of his disease, he was discharged, and has just returned home, "having been treated like a dog on the passage." He has taken much laudanum to gain relief from his great pains.

Patient in bed, much emaciated, weighing, he thinks, less than 100 pounds. Pulse 84; respiration 20; temperature 100°. Ptosis of right eyelid, which, however, he can overcome for a short time by trying. Tarsal adhesive inflammation. Cannot turn right eye inwards, or upwards and outwards; the other movements seem normal. There is constant numbness and some aching in parts supplied by the fifth cranial nerve of right side. He is troubled by mucus collecting in right nostril, and has slight deafness of right ear. The pupils are normal. Appetite good; bowels regular; micturition free; tongue pretty clean. Complaints of pain in all joints; no apparent paralysis of limbs. He was put on twenty-grain doses of iodide of potass. thrice daily, and morphia *pro re nata;* and there was marked improvement. On the 28th he complained of some pain in the left side of face and body, which gave him a bad day. Around the left eye there is considerable redness and swelling, but no pain.

30th. Has had fair nights, under moderate doses of morphia. This morning has had some pain about the left eye, but the redness had almost gone; complains of anorexia. Pulse 104; respiration 20; temperature 99.2°.

31st. This afternoon the patient finds that the sight of the *right* eye is almost gone; can just recognize the house physician. No pain of right eye of any amount, but the left eye continues painful. Now takes thirty grains of iodide of potass. thrice daily.

November 1. Says that with the right eye he can only see out of the "inside corner," and that not distinctly. The numbness of the right side of face continues; only slight pain about left eye to-day. He can now raise the eyelids freely, and the motions of the eyeball improve. An ophthalmoscopic examination of the right eye by Dr. Williams shows "retinal veins engorged; arteries small, and here and there obscured by exudation; papilla somewhat pushed forwards, and its outline indistinct."

3d. Sore throat, salt taste in mouth, eruption like acne on left face; the iodide omitted.

6th. All movements of lid and eye improved, and vision restored to the right eye; the numbness of right face much less, so that he says he "can feel pain as he used to." Still a little pain about both eyes.

8th. This day complains of considerable pain around *left* eye, and its vision is affected. Throat not sore. The iodide resumed in ten-grain doses. The ophthalmoscope shows the same changes in the left eye that were observed in the right 1st November. Both pupils dilated.

10th. Much pain in both eyes yesterday afternoon, requiring several doses of morphia. This morning the right temple swollen, and several tender swellings on forehead.

13th. The swellings nearly gone. Had headache and vomiting yesterday. To-day some "stiffness" of right side of face, felt perhaps before, but not mentioned.

The tip of the tongue is turned a little to the left when protruded, but not much. Still requires morphia.

18th. Vomiting and nausea each morning for several days. The iodide has been omitted again. A loose tooth was removed. The circumorbital pains are less; sees better with left eye than with right.

21st. Nausea checked, and pain almost gone, except from front teeth in lower jaw, which are bare to the roots. Patient has gained flesh since his stay in the hospital, and looks like another man. He can, with a little exertion, move the right eye as well as the left; he is able to read the newspaper nicely with the left eye, and can see pretty well with the right; is up and dressed daily, and anxious to go home.

22d. Iod. pot. gr. v. ter die.

23d. Feeling hearty; eruption again appearing on face. Discharged.

December 9. Readmitted; continued to improve till twelve days ago, when for the first time he slept in a cold room on a bitter cold night, and next morning had pain "all over head" which lasted till two days ago, when all pain, except about the right upper canine tooth, ceased. Four days ago, when applying cerate to eyelid, he found he was putting it directly on the eyeball, and then for the first time discovered that there was loss of sensation there and in the anterior half of right side of head; the tooth was tender and the adjacent gum easily bleeding. The patient's eyeball can be freely touched without his feeling the contact; the conjunctiva a little injected, and right side of face looks a little swollen. Has taken the iodide pretty faithfully since he left the hospital, and shows the effect by the eruption on the face. For the last three or four days he has vomited "yellow stuff" every morning. General health much improved; a small bit of dead bone came from the socket of a tooth drawn when he was in hospital before, several days after leaving it; has trouble in chewing; functions of body well performed; no febrile symptoms.

11th. Loss of sensation not complete, of parts described above; right temporal muscle much smaller than left, so that it can hardly be felt; right upper canine and lateral incisor extracted.

13th. Face nerve feels natural.

14th. Examined with ophthalmoscope by Dr. Wadsworth; nothing abnormal observed.

16th. Patient says he feels all "as it ought to be," except tenderness in gums from loss of teeth, and eye is "still queer, but coming all right." Discharged at his own request.

During the winter he lived in Roxbury, where he was attended by Dr. Stedman. He had almost constant pain over right eye, and took morphia in unknown doses; he was readmitted to the hospital

March 12, 1872. Service of Dr. Borland. The record states that the sensation of the face was normal, but the cornea of right eye could be touched without feeling; the tongue protrudes in median line; constipated, but otherwise feels well; temperature, 98°; pulse, 84; respiration, 22.

23d. Says that he has no pain when taking large doses of iodide of potass.

30th. Discharged relieved.

During the summer he was was treated as an out-patient for ulceration of cornea of the right eye, but was otherwise sufficiently well to effect an insurance on his life; he was admitted again to the hospital

August 29, 1872. Service of Dr. Edes. It is recorded that patient talks indistinctly and his statements cannot be relied on; says that since his last discharge from hospital his health has been poor and he has been growing worse lately. Yesterday he had diarrhœa and vomiting, which continue; is in bed, much emaciated; extremities cold; pulse 96; tongue coated; no appetite; much thirst; two or three dejections daily.

September 4. Ophthalmoscope showed fundus of each eye normal.

5th. Mouth drawn to the right; cannot move left side of face as well as right

25th. Discharged,

Mr. B. boarded in a bleak spot in Dorchester during this very cold winter, and had a cold room; he gradually failed, losing his faculties, sensation, and motion; he died 25th February, 1873. The autopsy was made by Drs. Edes and Stedman.

Notes by Dr. Edes. All the organs appeared to be healthy, except the lungs, the upper portions of which were studded with small tubercles, and the brain surface and substance somewhat congested; substance of the brain hard. A considerable amount of serum in the ventricles. In the *right* middle cerebral fossa the apex of the temporal lobe was adherent and softened, so that upon removing it small fragments remained attached to the dura mater. This condition extended over a space about an inch in diameter, lying partly over the Gasserian ganglion; dura mater thickened, but the bone beneath it appeared healthy.

Gasserian ganglion decidedly thickened as compared with that of the other side; optic chiasm surrounded with lymph, which was especially abundant upon the right optic nerve; upon the arteries of the Sylvian fissure upon both sides were seen white or thickened patches in the walls. In one or two places the arteries were covered with an exudation of lymph. Two blood-vessels on the posterior pyramids, one upon each edge of the floor of the fourth ventricle, showed similar thickened portions, especially on the left side

On microscopic examination of the fresh specimens the *left* (comparatively healthy) Gasserian ganglion contained, besides nerve fibres and cells, numbers of small, round and oval (indifferent) cells. The right contained more of the same cells, some spindle cells, and more old fibrous tissue.

The soft substance adherent to the cerebral surface of the dura mater was finely granular, and contained round and oval nucleated cells. No healthy pyramidal cells were seen. Some yellow pigment in the course of the vessels. In one place a group of very darkly granular triangular cells was seen, evidently cerebral from their shape, but not presenting the usual appearance of fatty degeneration. It seems possible that the degeneration was of a calcareous character.

Sections of specimens hardened in chromic acid and alcohol showed a much greater abundance of connective tissue in the right Gasserian ganglion than in the left. Nerve cells and fibres were distinct in both. In the right, however, the single cells seemed to be somewhat more separated from each other. No clearly defined difference in the appearance of individual cells could be made out. The number of pigmented cells seemed larger upon the left. Pigment granules not in the nerve cells were seen on both sides.

Sections were made of the thickened arteries, especially of one not mentioned above, which was afterwards found at the base of the brain, partially imbedded in the cerebral substance. The best starting-point in the examination of these sections is the muscular coat, which presents its normal appearance. Externally, we find a layer of many cells mostly round or oval, but in many places surrounding the *muscularis,* and evidently replacing or representing the adventitia. There is, however, no distinct limitation, but the accumulation of cells spreads out upon both sides into the pia mater, and sometimes embraces many smaller vessels. At the point of contact of the artery with the cerebral surface, and opposite to this, the cellular layer is less thick, and probably here represents pretty accurately quantitatively the *adventitia.*

Internally to the muscular coat, forming sometimes a ring of uniform thickness, and sometimes much thicker on one side than another, we find the *intima*, composed of parallel bundles of tissue with circular and oval spaces. Many or most of these spaces are occupied by a body which probably represents a nucleus. The spaces are more abundant and larger at the edge nearest the lumen of the artery and furthest from the *muscularis.* In some places these spaces or cells present very much the appearance of several irregular layers of epithelium lining the artery. The inner portion of the *intima* is stained with blood. When the intima is most hypertrophied, the lumen of the artery, if we regard the circular fibres of the *muscularis* as occupying the normal position, cannot exceed one-half its former diameter, or one-fourth of its area.

Immediately beneath the artery, imbedded in the brain-substance from which most of the sections were made, the cerebral substance appeared, as it were, crowded, the outer layer being no longer distinguishable at this point, and the cellular elements being increased in number. The smaller vessels penetrating the brain may have had the nuclei of their sheaths somewhat increased in number, but this change was at any rate not very marked.

The changes in what is here spoken of as the outer layer of the intima, according to Kölliker, correspond quite nearly to those spoken of by Cornil in the inner layers of the middle coat in varicose veins. The structures described are undoubtedly similar. Cornil, however, states that the inner layer is distinctly marked off from the hypertrophied connective tissue of the media, which was not the case in our specimens; a difference possibly to be accounted for by the difference in the form between the epithelium of veins and arteries; the latter being longer and more spindle shaped.

In the arteritis described by Charcot and Bouchard, in connection with miliary cerebral aneurisms, the proliferation seems confined, or nearly so, to the external coat of the artery, the internal being slightly if at all affected.

This case presents several points of interest, beside the correspondence between the more prominent symptoms observed during life and the lesions discovered after death, which is sufficiently obvious.

The lesion of the ganglion here observed, namely, the hypertrophy of connective tissue, seems to be almost the only one to which the outlying ganglia are liable, except the atrophy of the fine nervous elements, which is, after all, probably a mere consequence or second stage. This atrophy could not be distinctly made out in our case.

The nervous and cerebral disorders associated with constitutional syphilis are interesting both in a theoretical and especially in a practical point of view, since symptoms of equal severity justify a far more favorable prognosis and are far more amenable to treatment when consequent on syphilis, than when the result of some non-specific lesion whose precise character it is usually difficult or impossible to diagnosticate. These symptoms are usually attributed to and in fact are very generally produced by syphilitic neoplasms or gummata, or by syphilitic periostitis. The latter mode is shown in our case so far as the lesion of the fifth pair is concerned.

It would certainly seem, however, that arterial lesions like those observed in this case must play an important part in the production of symptoms; and a recent author, to whose writings I regret not to be able to refer more definitely, has suggested that some of the characteristics of syphilitic brain disease, and especially the rapidity of variation in the severity of the symptoms, and their frequent paroxysmal character, may well be accounted for by supposing them to depend on vascular derangement. We can easily see how those variations in the size of the cerebral arteries which we have every reason to suppose are constantly occurring under the influence of the vaso-motor nerves, and which when the artery is healthy produce only normal physiological changes in the blood supply, may, when their calibre is reduced to one-fourth, give rise to a more or less extensive and complete anæmia, and its consequent symptoms. Such might have been the case reported by Passavant. (*Virchow's Archiv.*, xxv., p. 170.)

The permanent diminution in the blood supply too can hardly be without effect, and may account for the condition of dementia or "paralysie générale," sometimes observed in syphilitic diseases, and indeed approached in our own case.

The connection between syphilis and aneurism, too, is a subject not without interest. Although such a connection is asserted, as for instance by Aitken, the causal nexus does not seem in all respects clear. Cases like the present, taken in connection with the views expressed by Virchow, and enlarged upon by Mr. Moxon (*Guy's Hospital Reports*, 1871–72), namely, that atheroma is not primarily a degeneration, but a chronic arteritis, would seem to show that the relation between the syphilitic dyscrasia and aneurism is by no means a distant one. Mr. Moxon, indeed, doubts whether the cases of aneurism cited by Aitken in support of his view are anything but coincidences, and this is of course possible with the arteritis in our own case. The undoubted specific history, however, the repeated though temporary improvement under treatment, the peculiar character of the symptoms, the age of the patient, the occurrence of the arterial lesions in various portions of the brain, and in connection with others more generally recognized as syphilitic, certainly give a high degree of probability to the view that the connection between constitutional syphilis and the chronic endo- and ecto-arteritis was more than an accidental one.

Cases of Syphilis Without Mercurial Treatment.

Under the heading of Clinical Contributions to Syphilidology, Drs. Van Buren and Keyes report two interesting cases to the *Archives of Dermatology* for January, 1875:—

The first was that of a physician who while a student got a small, insignificant, primary sore. By advice of a medical friend he took no medicine. A slight papular rash appeared. For this he physicked himself with laxative medicine, but took no mercury. The rash disappeared and was not followed by a successor. His health remained perfect. Nine years after the chancre a node appeared upon the cranium. This caused no uneasiness, its nature not being suspected. The node remained hard, solid, untreated, *for eleven years*, the general health continuing vigorous; but now the patient became prostrated for several weeks by a sickness which had no connection with syphilis, and on recovering from the attack the node softened. After being opened the edges sloughed extensively, leaving the bone bare over a circular area of more than two inches in diameter. At the time of the patient's visit the necrosis had been visible for nearly a year; its nature had been suspected, but he had employed no specfic treatment. Pus had burrowed under the scalp for several inches posteriorly.

The second case was that of a man who acquired a slight urethral discharge as his first venereal malady. This was followed by double epididymitis, and purulent urethritis, from which he slowly recovered. He had no other symptoms and took no mercury. In one year he married, and had a healthy child. His wife never conceived again, but remained well. Twelve years after his urethral chancre—as it probably was—some ecthymatous spots appeared upon the patient's legs. Suspecting their nature, he went to a specialist of distinction in venereal disease for treatment. Under the use of arsenic the "boils" disappeared, and their sites were occupied by pigmented scars entirely characteristic of antecedent syphilitic lesion. One year later the patient ran down in general health, became yellow and thin, lost the power of reckoning, had hemicrania and double vision, loss of memory, and many evidences of failing brain power. He was sent to Europe for threatened softening of the brain, and was told in Paris by a distinguished practitioner that his symptoms were due to threatened apoplexy. Most of his nervous symptoms having disappeared, he returned to America. After some months his present symptoms developed, namely, tertiary gummy infiltration of the soft palate, with rapidly advancing destructive ulceration, for which he now applied for treatment, not suspecting its nature. Improvement commenced at once and advanced with great rapidity under the iodide of potassium.

The reporters state that these cases are full of food for thought. The facts of the second case may be defectively stated, since the patient had brain symptoms and his memory may not be trustworthy. He may have had, after his urethral chancre, some eruption which was not noticed, or was forgotten; but still here are two individuals with infecting chancre, neither of whom gets mercury. The one has one mild symptom, the other nothing that he can remember; both are cases which, according to Diday, should get no mercury, yet both have disastrous sequences.

The following conclusions are drawn from the cases: 1. The evolution of syphilis may be mild and regular, even when no mercury is used early in the disease. 2. With the mildest beginning in syphilis, untreated, the most terrible consequences may occur after years of quiescence. 3. The severity of tertiary lesions does not depend upon previous use of mercury. 4. The efficacy of the iodide of potassium, properly employed, is not dependent upon a previous use of mercury. 5. A father with syphilis may have a perfectly healthy child.

Syphilitic Affections of Lachrymal Apparatus.

From an article on this subject in the *American Journal of Medical Science* April, 1875, by Dr. R. W. Taylor, we make the following extract:—

It may be stated with much positiveness that the Canaliculi, Sac, and Nasal Duct are never the primary seat of syphilitic inflammation. Not frequently being affected, when they are thus, it is simply by the extension of inflammation from adjacent structures. Thus the canaliculi and sac become the seat of a catarrhal inflammation in consequence of congestion of the conjunctival mucous membrane continuous with them; by its extension through the nasal duct from the Schneiderian membrane, and by the occlusion of the lower part of the duct. In the latter event, as the secretions do not escape, they become decomposed and are highly irritating. Not only are these parts involved in the secondary period, but also they become affected by tertiary affections of neighboring parts.

The inflammation of the upper portion of the canal and of the sac, which I have said is of a catarrhal character, varies very much in its severity. Being coincident with and dependent usually upon a conjunctivitis, which generally complicates inflammation of the intraocular structures, it is usually of temporary duration, consisting in a swollen condition of the mucous membrane, which under treatment of the original lesion soon ceases, without leaving any trace. Sometimes the tumefied condition of the parts is so great that temporary epiphora is produced, but usually it disappears rapidly. Not occuring in every case of intraocular trouble, when it does it is not important, and fistula lachrymalis. does not result from it. In rare cases the orifice of one or of both of the canaliculi may become slightly ulcerated, but in most cases there is no distinguishing feature of syphilis to be observed. These parts, however, may be the seat of very severe chronic inflammation, attended with the development of fistulæ and other annoying symptoms of dacryocystitis. Such cases are dependent on great destructive change in the bony walls, which surround or are in the neighborhood of the canal. Owing to neoplastic growth late in syphilis, necrosis of the orbital process of the frontal, of the ascending process of the superior maxillary, or even of the lachrymal bone may occur, as a result of which there is compression of the upper part of duct and of the sac, and their function is wholly destroyed. This condition is a formidable one, and is attended with very considerable disfigurement. The sinuses which communicate with the dead bone are the seat of inflammation, which extends to the canal, already the seat of inflammation from compression, and they may even open into the sac itself. During the period of activity of these necrotic changes, much pain is felt, and the inner angle of the eye is greatly swollen and very red. The process is generally slow, and in the end there is sometimes much loss of tissue. In some cases the syphilitic inflammation in the bones is not complicated with degenerative changes, in which event the inflammation in the sac, which at its height may have been active, subsides with the involution of the bony enlargement, and finally the parts are left intact. I had such a case, in which, among other nodes about the head, there being one on the other border of each supra-orbital foramen, there was a well-marked swelling involving that portion of the ascending process of the superior maxillary which articulates with the lachrymal bone, encroaching on a portion of the latter. When this swelling had become large, being raised nearly half an inch above the normal plane of the bones, the sac was very much compressed, its function being abolished, and there was moreover much hyperæmia of the parts. The eyelid was pushed out, and the caruncle was very red and prominent. I feared that it might be permanently injured, but under an active treatment the swelling slowly grew less until finally it was all absorbed, the canal remaining uninjured. In such cases, if the inflammation is of very long duration, there is much reason to fear stricture or occlusion of the parts in consequence of the walls becoming attached to one another.

In those cases in which there is considerable necrosis, all of the delicate structures at the inner angle of the eye may be involved in ulceration, by which the sac, duct, and portions of the canaliculus are wholly destroyed; after the healing of the parts has taken place, a cicatrix is formed which greatly disfigures the countenance. The case which forms the text of this description presented peculiar features.

A man seven years syphilitic, in whom large ulcerating gummata communicated with extensive areas of necrosed tissue of the tibia, finding that his rest was prevented at night by pain at the inner angle of the left eye, noticed in a short time a swelling under the skin, which increased very rapidly, and with it the soft parts at this site soon participated. As a result of a dissipated life, very soon an extensive ulcer formed, from which a small portion of dead bone was extruded; this led him to seek advice, and his case came under my observation. At that time a funnel-shaped ulcer of syphilitic appearance, which had begun two months and a half previous, was seen at the inner angle, and from it an unhealthy sanious secreti escaped. As the edges of the integument were everted and thickened, the ul presented the appearance of being very deep. I ascertained with a probe that dead bone was situated at its bottom and on its sides. Under treatment, local and constitutional, the parts healed slowly, as in four months a depressed radiating cicatrix was formed, which drew the lips inward, producing a permanent epiphora.

In other cases an ulcer of this size might not form, there being perhaps only a trifling sinus, in which event the sac might escape permanent disorganization. Under all circumstances, considering the gravity of these sequelæ, bony lesions of these parts should be treated in an active manner, to avert these possible consequences.

Passing now to the lower end of the duct, we find anatomically its lining membrane to be continuous with that of the nose, and that thin plates of bone form a part of its wall, while other similar structures are in the immediate vicinity.

Now, in secondary syphilis, hyperæmia and ulceration very often attack this membrane, while in tertiary syphilis, both ulceration of the mucous membrane and necrosis of these bony plates frequently occur. In all of these processes the nasal duct may be involved; in some instances in a mild ephemeral manner; in others with so much severity that the lumen of the duct is destroyed. When in syphilis the Schneiderian mucous membrane is affected, the hyperæmia extending to the duct may be of such a mild nature that no objective symptoms are produced, or the hyperæmia may be very active, the soft tissues of the walls of the duct may be very much swollen, even to the point of ulceration, or, again, to the production of large quantities of pus, and the development of shreds of a fibrinous membrane similar to that which is falsely called diphtheritic when observed about the fauces. In this state the symptoms are very well marked. The inflammation may extend up the duct and involve the superior portions, or above the inflamed part, which, by the excessive tumefaction of the membrane, is impermeable, secretions mixed with pus stagnate, thus involving the whole apparatus in severe inflammation. This condition, even when very serious, may be but temporary, while under proper treatment perfect resolution may take place. Or, again, fistula lachrymalis may occur, which, however, will yield to treatment, unless adhesion takes place between the membranous walls below. This condition is usually observed late in secondary syphilis, only occurring in a very small proportion of cases. I have been very much surprised, in some cases of hereditary syphilis in which the ulceration of the nose was very severe, that the nasal duct should have escaped. The possibility of the occurrence of the inflammation of this duct and of its sequelæ should be borne in mind, and should lead practitioners to institute a local treatment very early in the event of inflammation of the Schneiderian membranes.

But in the tertiary stage and late in hereditary syphilis, the affections of this duct are of much gravity. In some cases in which the inflammation results from extension from an adjacent ulcerated surface, the condition may be of the mild and ephemeral character already described. But there are others in which structural changes occur which are serious in their results In such a case the ulceration of the mucuous membrane of the nose, which in this stage is deep and destructive, may invade that of the canal, which may be rendered finally impervious by the contraction of the cicatrices. During the progress of this lesion, the symptoms of inflammation of the duct and of its occlusion will be observed. When the lower part is thus closed by cicatrical tissue, a fistula then almost inevitably forms.

The same result sometimes follows when that portion of the inferior turbinated which forms the lower part of the wall of the duct is destroyed by necrosis, or when the cones composing the wall higher up are thus affected. In this event the symptoms of the obliteration of the duct are soon developed, which go on until a permanent occlusion is produced. The cases in which this condition is observed are those in which the bones of the nose have been for a long time seriously affected. They are very severe in character, not only by reason of the great distress induced by the disturbance of the function of the parts, but also by the severe pain which sometimes accompanies the process. I recall to mind a woman, the subject of hereditary syphilis, who suffered for years with frequently recurring attacks of necrosis of the nasal bones, which in spite of active local and constitutional treatment, relapsed in a distressing manner, only ceasing when the greater part of the bony plates had become necrosed and were exfoliated. Also, the case of a man suggests itself who had fall of the nasal bones, severe protracted necrosis of the turbinated bones, and as a result fistula lachrymalis of both sides.

In all of these instances, it will be seen that the inflammation of the lachrymal passages has been secondary to that of other tissues. We have no recorded instance of syphilitic inflammation beginning primarily in the canal, and it is probable that it never does. It would be rather difficult to establish this fact under any circumstances, owing to the inaccessibility of the parts to ocular inspection.

Little need be said of diagnosis in these cases, as the processes when simply ulcerative present no distinguishing features, and their nature is to be determined chiefly by the history of the case, in each one it being well to suspect syphilis. When necrosis occurs it may, as a rule, be considered syphilitic without any fear of mistake. The treatment should be directed to the cure of the trouble in the nasal cavities, with appropriate measures for that of the lachrymal passages.

On the Treatment of Secondary Syphilis.

Dr. J. L. Milton writes to the Edinburgh *Medical Journal*, March, 1875:—

Under the head of secondary syphilis, I propose comprising—merely, however, for the purpose of treatment—all forms of infection following upon chancre; from the wasting, lassitude and glandular swellings which usher in the coming mischief, up to the latest stage of tertiary ulceration, or syphilitic disease of the internal organs or nervous centres. The reason for thus agglomerating symptoms so widely differing from each other in character and date, the treatment of the last phase of which is supposed by so many excellent authorities to be fundamentally distinct from the first, will be seen further on.

I am not going here to re-open the old question about the superiority of simple over mercurial treatment, or of the latter over the former. After all that has been written, the dispute seems in much the same state as ever. The latest combatants who have appeared on the stage come forward, each in support of his own cause, as confident, as well supported by facts and cases, as any of his predecessors. This ever-recurring, endless conflict of opinion seems so entirely independent of the merits or demerits of the point at issue, and so entirely dependent on a cause quite beyond our control—the inborn constitution of the human mind—that I should consider it waste of time to examine arguments controverted only to start into life with renovated vigor. In a systematic work, it would doubtless be the author's duty to do so, however fruitless and unprofitable he might consider the task; but in a paper intended to be strictly practical, any endeavor to reconcile such conflicting opinions as that the worst symptoms of syphilis are never seen except when mercury has been given, and that equally bad cases are met with in persons who have never taken a grain of mercury or used it in any form—that mercury is a poison here, as maintained by Mr. Syme and many others, and the sole antidote, as taught by numbers of excellent surgeons—would be quite out of place.

Neither will I attempt to state all the reasons which gradually led me to abandon the known methods of treatment, and to substitute that which I propose to describe here. The observations on which this system is based extend over many years of trial; during the last four or five years it has been incessantly in force, except during the periods when I was absent from work; great part of it would consist but of a long history of failures and disasters, of slight successes and frequent disappointments, which, though important enough perhaps at the time of trial, would be equally wearisome to recount and to read. I think, therefore, that it will be better to restrict myself to stating the conclusions arrived at.

The first is, that beyond all question, a great many persons get well without taking any mercury at all. So far, I think, the opponents of this drug are right. Very possibly these persons would have been cured more quickly and effectually if mercury had been given; but the fact that they get well without it—so far, at any rate, as visible symptoms are concerned—cannot be doubted. Besides, I entirely question the utility of mercury here. The patients of whom I speak are usually careless and refractory, often dissipated. They have so far done nothing for their complaint, and, most probably, would do nothing for it in the only way likely to be of service. For a short time, perhaps, impelled by the fear or suffering which some new and threatening symptom has brought on, they may conform with tolerable regularity to the rules laid down by the surgeon; but with the first feeling of relief these good resolutions vanish, and they return to their old courses as surely as the comet returns towards the sun: sometimes, indeed, recovering by the aid of a good constitution, fresh air, and high feeding; oftener, perhaps, breaking down in the long run from the combined effects of syphilis and debauchery; or, perhaps, disappearing from our view, so that we cannot trace their course for good or for evil.

To give mercury for such a case means simply to add to the mischief, to damage the reputation of the drug and of the practitioner who prescribes it. There is scarcely any fact better established in medicine than that mercury, to be of any service, must be taken systematically; and that is one of the last things that a patient of this class is likely to do. The surgeon may as well suffer him to go his own road; for go it he will, whether he be preached to or not. We may put down in the same category with these persons all those who have a great horror of mercury, who believe they cannot take it, who make a point of controverting every rule of treatment, or who cannot be depended on as respects their habits. They may, one and all, be eliminated from the class of cases to be treated by means of mercury. The surgeon who tries to use it here will find that it is a two-edged sword, with one edge a great deal sharper than the other; the patient will blame the mercury for everything that goes amiss, and he will reap nothing but vexation for his pains.

Again, there are many cases which do extremely well on iodide of potassium. On this head there is ample evidence, and I have observed cases which might satisfy the most incredulous. Not merely do the symptoms disappear under the gentle operation of this medicine—not merely does secondary syphilis, thus treated, vanish without bringing in its wake the dreaded tertiary symptoms—but years afterwards

I have examined such patients, and failed to find any trace of a relapse, or any prospect that one would occur.

If at the outset we could unfailingly diagnose these cases, I do not know that it would be necessary to treat them with mercury; probably it would be quite as well not to give it at all. I see no evidence that mercurial treatment is here in any way superior to that of iodide of potassium; it may be equal to it, but that is a different matter. The mercury can only cure after all, and that the iodide seems to do. But it is only too certain that we cannot at the beginning isolate these cases from those not amenable to the potassium, and that a very large proportion of the cases treated with the latter salt run anything but a favorable course. When this is the case, too, no increase of the dose, no degree of perseverance in the use of the remedy, however valuable such steps may be in the tertiary stage, will avail to remove secondary disease refractory to moderate quantities. I do not understand how any one can maintain that it always yields here to the iodide. My experience runs directly counter to such a statement. It might, indeed, be said that cases which do not disappear under the action of the potassium, resist mercury quite as obstinately. With a certain reservation, there is a good deal of truth in this view, and it is the worst of these cases that so often try the surgeon's resources when treating them with mercury.

I will now suppose that the process of elimination has been pursued far enough, and that we have simply to deal with the cases which remain—that is to say, with all those which we are not warranted in considering as likely to yield to time, to simple treatment, or to iodide of potassium. I suppose I am only endorsing the common-sense view of the profession, when I say that there remains for these no remedy but mercury. The reader is to remember that I am speaking here strictly of cases which hold out no promise of getting well under any other system, where the expectant method has been tried and found utterly wanting. Whether the surgeon will err on what he thinks the side of safety, and decide to look upon all cases of syphilis as, *ab initio*, fraught with mischief, is a question I reserve for consideration further on. Paracelsus said, no man knew the amount of vice there might be in an ass; and there can be no doubt that many excellent surgeons have, in the course of their practice, learned to look upon syphilis from much the same point of view, and to distrust it as much in the mildest form as in the most severe.

What the surgeon can do with these cases unless he gives mercury, I am quite at a loss to know. I therefore refrain from entering upon any fruitless discussion, and proceed upon the assumption that he has decided to try the great antidote, about which I am desirous of making some preliminary remarks, for which I ask the reader's particular attention, as they run quite counter to the views held by some eminent observers.

The first remark is, that if mercury is really to be used for the cure of these cases, it must be carried to the extent of producing a thorough effect upon the system. I do not believe a worse principle than that of simply giving mercury till the present symptoms have disappeared—of stopping short on the first appearance of any slight sign of soreness of the gums—was ever laid down. It is no wonder that some of those who treat syphilis by this "extinction" plan, should find it often recur, and, indeed, come took look upon syphilis as nearly, if not quite, a hopeless affair. No system that I have seen put in force seems better calculated to make the disease incurable, and M. Simon had M. Ricord fairly on the hip when he taxed him with the shortcomings of his treatment. In my opinion, the disease must be thoroughly subdued before any attempt is made even to reduce the amount of mercury, much less to leave it off altogether. Any half measures here are only likely to be as mischievous as semi-extripation in scirrhus. "The back" of the disease "must be" thoroughly "broken," or it will better for both patient and surgeon that mercury should not be meddled with.

Supposing, then, that the surgeon has decided to try mercury, the next great question is, What mode of using it should be resorted to? For my own part, I have no hesitation in saying at once that it should be employed externally—at any rate, so far as the chief effect to be expected from it is concerned. As an adjuvant to the external use of mercury, I not only never hesitate to give this drug by the mouth, but on the contrary, invariably recommend it; but nothing would induce me to trust to it as the sheet-anchor. The most careful and judicious administration of it in this way is only too apt to be followed by most serious results, by irreparable mischief. Just enough blue pill to make the gums slightly sore, will, in some constitutions, cause the uvula to slough right off, or a piece of the jaw to exfoliate—will bring on alarming and persistent bleeding from the bowels, or an amount of prostration which compels the practitioner to give up the remedy at the very time when it is most necessary to go on with it. Granted that such accidents occur but rarely when there is a reasonable amount of prudence on both sides, it must still be admitted that they do happen at times. There are men who deny that anything of the kind ever occurs in their practice; the answer is, either that they cannot have had much practice in syphilis, or that they have not followed the cases up.

The opponents of mercury say that the worst results of syphilis are only seen when mercury has been given; and there can be little doubt that the effects of mercury given by the mouth are calculated to lend effect to the statement. Unquestionably the statement itself is exaggerated. There is ample evidence that symptoms of the worst class, especially in the form of phagedæna and sloughing, are seen where no mercury has been taken; but they are exceptions, and, as a rule, I believe the charge here holds good, and most so of all when the drug has been taken by the mouth. In my own practice, all the worst cases that I have seen were instances of this. Many of them would, no doubt, have been very bad under any treatment; they would, perhaps, have run much the same course had mercury been used externally, or possibly had it not been given at all; the use of the drug may have been only one of many causes contributing to the exacerbation of the disease; but the conclusion that its its use lent a fearful impetus to the mischief seems irresistible.

Of the two remaining modes, that by friction and that by vapor-bath, I have only to say, with respect to the former, that however well suited it may be thought to a Lock Hospital, or a desperate case in private life, the recommendation to use it generally in practice must ever prove inoperative, for the simple reason that patients will, as a rule, reject it. Now and then, a man who has nothing to do may be found willing to go through a course of friction; or a person afflicted with syphilophobia may hail the proposal to do so with delight; but nineteen times out of twenty the patient will have nothing to say to it. He knows, when the matter is explained to him, that such a proceeding brings with it dirt, confinement, exposure, and discomfort, and he will rather risk the chances of a milder system. The surgeon knows that behind this lurk still more serious evils—eczema, erethism, intractable salivation—and consequently does not often exhibit any violent enthusiasm for a plan which may bring all these symptoms in its train, and may not bring relief.

Yet, if it is to do good, these evils must be faced. Using inunction so gently as to steer wide of all chance of acting on the mouth, is in my judgment worse than useless. The present symptoms may be removed, but the disposition to still more serious outbreaks is rather exasperated than alleviated, and I fancy there are few men of experience who, when they get the chance of taking the patient in hand for a radical cure, would not much rather have a case where no mercury had been used, than one where it had been tampered with in this way.

We have now to deal with the vapor-bath, so far the cleanliest and least objectionable of all the modes of administering mercury. Its curative power is perhaps as great as that of inunction. There may be instances where a sharp salivation set up by the latter will do good where the bath has failed. Such cases have been related, but I am disposed to consider them as very rare, and to think that the chances of cure by the bath and by friction are pretty nearly balanced.

I do not wish to say one word in depreciation of Mr. Lee's labors; on the contrary, I hold them in too high estimation for that; but I think their value would be greatly enhanced if they were made to comprise an accurate estimate of the relative proportion of failures to successes; and if we could gather, from reading the accounts, a clue to the cases in which vapor is likely to effect a radical cure, as distinguished from those in which it will only relieve the present symptoms, I think it is quite time that this question is stirred up. Mr. Lee has done so much that is likely to survive all cavil, that he can well afford to have the subject cross-examined; and when this is done I think it will result in the conclusion that, though the lamp-bath is the greatest improvement of modern days, yet that it still leaves much to be done. It does not get over the objections made to all systems of administering mercury. It sometimes fails; formidable symptoms, showing that it is not mastering the hold which syphilis has got upon the constitution—such as single, and even double iritis—will appear when the patient is thoroughly under the influence of the bath; and when both these contingencies are averted, and all present spmptoms disappear without any untoward occurrence, it still leaves the disposition to relapse untouched. The tendency to return on the first occasion will often resist the most persevering use of calomel vapor. I have pushed the baths to as great a pitch as the constitution seemed capable of bearing. I have continued them up to within a week of marriage, and yet have seen the first child born decidedly syphilitic.

When Mr. Lee first announced the very decided success which had followed his trials with the vapor of calomel and water, I not only tried his plan extensively, but had a bath fitted up at the hospital, where I could study the effects of these remedies under my own eyes and on a large scale. But, however gently I used the vapor, or however far I pushed it, one result invariably cropped up. There was a certain percentage of failures. I then tried the addition of a small quantity of mercury, and afterwards of small doses of iodide of potassium, but with no better success. Chance led me to make trial at last of the Zittmann decoction, and with such surprising results, that I have since gradually extended the employment of it to every case and form of syphilis; combining it, however, with the iodide of potassium and mercury, and the employment of the vapor-bath, in the following manner:

The patient is first of all put through a course of iodide of potassium and perchloride of mercury. By combining these in the same mixture, red iodide of mercury is given in a form of extreme diffusion and freshly made, conditions which enable the stomach to bear it so well that I have never yet known the mixture disagree. I would most strongly advise that, at the outset, the dose should be very small, not more than two or three grains of the potassium, and from the thirtieth up to the twentieth of a grain of the perchloride. Nothing can militate more effectually against the success of the treatment than to risk setting up irritation by giving the remedies too freely at first, or even by raising the strength of them too rapidly at any time. The object in view is effectually defeated so soon as ever symptoms of iodic poisoning begin. There is no choice but to entirely abandon the medicine for some days, perhaps weeks, but certainly until the symptoms have quite abated. At the same time, every precaution should be taken to prevent such a result arising from the doses really necessary to produce an effect upon the disease, and in practice I believe nothing answers better than to combine them with bitters and aromatics. The choice of these may be safely left to the practitioner; it is not, perhaps, of much moment, so long as the medicine is made to sit well on the stomach, and rendered palatable, but it is of great importance that those two objects should be effected, as otherwise great difficulty may be experienced in continuing a medicine which nauseates the patient at the time of taking it, and disagrees with him afterwards. I generally use the tincture of chirata, with syrup of orange-peel or ginger, and cardamoms, as a vehicle; but my readers will be as well versed in such matters as I am.

At one time I conjoined those medicines with sarsaparilla; it is not likely now that I shall ever commit such a mistake again. I have used pretty well every preparation of sarsaparilla I could hear of, and long ago came to the conclusion that it was waste of time and money to employ it, except in doses too bulky and nauseous for general use; that is to say, in large quantities of the warm decoction. I have frequently prescribed the concentrated decoction in doses equivalent to twelve or eighteen ounces of the ordinary decoction, daily, for a long time together, without the patient deriving the least benefit from it.

But all precautions that I have seen put in force, for the purpose of enabling the stomach to bear the potassium and mercury, fail more or less frequently unless aperients are combined with them, and the patient is restricted to a proper diet. As to the aperient, I believe it is essential that it should consist of two chief ingredients—a pill to be taken over night, and a draught for morning use. I have repeatedly tried both separately, and have failed quite often enough with both to deter me from any repetition of the experiment. The pill may consist of colocynth, blue pill, and hyoscyamus; or a mixture of rhubarb, soap, and jalap; a sedative or aromatic, sufficiently potent to obviate griping, is an essential feature in its composition. Naturally enough, I no not mean to say that the choice of the practitioner is to be restricted to these ingredients; he will have to select according to the constitution of the patient, and the present state of that patient's health.

For the morning draught, I would recommend salts and senna; but under that name I understand something very different from the compound usually taken, or the black draught of the Pharmacopœia; both of which, however well adapted to the ordinary emergencies of practice, are unsuitable here, the quantity of sulphate of magnesia being far too large. A small black draught usually contains quite two drachms, and when the medicine is made at home, much more is generally taken, causing an unnecessary amount of griping, without any equivalent good. About a drachm is generally quite sufficient, and many persons, especially women, do not require so much. On the other hand, the quantity of senna must be increased. It is not easy to speak with exactitude, some people being so much more easily effected by this drug than others, but generally quite a drachm is required, often more. The taste, when objected to, is easily covered by the admixture of liquorice, which also serves to facilitate the operation of the medicine. To the addition of the tincture of cardamoms I see no objection, but it is not required here as a carminative, because there is little, if any, griping set up by the medicine.

The draught should always be freshly made, and be taken in as dilute a form as possible. I advise the patient, when it is practicable, to make the medicine at home each time that it is required. The proper amount of salts, senna, and liquorice, made up in a packet, is kept ready. When the draught is wanted this is placed in a jug, a breakfast-cupful of boiling water is poured upon it, the mixture is briskly stirred to dissolve the sulphate, and as far as possible the liquorice; it is then closely covered up, and next morning strained off and drank. The more dilute the form in which it is taken, the more certainly and gently does it act. If the patient object to diluting it before swallowing, he can do so after, by drinking half a tumbler of cold water; or, what is better, a large cup of hot weak tea, so soon as he has sufficiently recovered from the fatigue of getting the draught down. As for any substitutes in the shape of tincture of senna, syrup of senna, etc., I have simply to remark that I never yet saw one of them do the least good, and that the greater the divergence in the direction of concentration and making things agreeable to the palate, the more useless does the medicine become.

I have often been asked by patients if they might substitute some mineral water, patent preparation of magnesia, etc., for the draught. There can be no harm in granting the request, as the patient is generally the first to find out that there has been a mistake. The moral effect of the victory gained by conquering man's natural repugnance to the unpalatable flavor of mineral waters, combined with that of superstitious faith in anything that issues from a mineral spring, may have some sort of influence; and some preparations of magnesia may take the place of the senna mixture for a brief time without any perceptible mischief; but I think that he who carefully weighs the facts of the case will incline to my belief in the superiority of the latter.

The pill and draught should be taken once or twice a week, as a somewhat free action of the bowels serves not only to favor toleration of the iodide, but to improve the health. Some persons are afraid that the continued use of such medicines must prove injurious. I believe the impression to be quite unfounded. There may be at the outset some depression after a brisk aperient, but the reaction which follows is generally attended by a feeling of relief, of greater fitness for work, mental or bodily, and better spirits; signs not at all likely to attend a prejudicial action of the medicine.

So soon as ever these symptoms are observed, the dose of the iodide and perchloride may be raised at the discretion of the practitioner. I seldom, in my own practice, go beyond five grains of the former, and an eighth of a grain of the latter, two or three times a day, and always stop short of setting up much irritation. The combined treatment is continued for four or five weeks prior to beginning with the mercurial bath, to be presently described, and, if possible, during the whole time it is employed.

Directly the dose of the iodide is increased, the patient may begin to take a simple vapor-bath once or twice a week, and under any circumstances a course of these should precede the use of the medicated bath. Some of my readers may consider this precaution superfluous, but they have only to watch the progress of a few cases to satisfy themselves that the disappearance of any eruption is often greatly accelerated by the vapor-bath. One author, indeed, who has tried both plans, goes so far as to affirm that the watery vapor is really the active agent in the calomel bath, and that it is the mercury which is superfluous. At any rate, the simple vapor-bath possesses one valuable property which, I think, few observing persons will refuse to accord to it—that of materially improving the condition of the skin itself, and thus very probably facilitating to some slight extent the removal of the syphilis. At one time the obstacles in the way of getting vapor-baths were so great, that, except in the case of a few persons who happened to be living near an establishment of this kind, the recommendation to employ them was inoperative; but now that a perfectly safe and portable vapor-bath can be procured for a small outlay, the difficulty no longer exists.

Having taken the simple vapor-bath for three or four weeks, the addition of mercurial vapor may be safely begun with. The quantity used at first should be very small—not more than five or ten grains of calomel for a bath—and should, I think, rarely exceed twenty grains. Some practitioners employ as much as sixty grains, but the action of this quantity is far too violent, and I have seen very painful and disagreeable lichen—threatening to run into eczema—result from it. Where the patient can conveniently resort to a bath properly fitted up for using mercury, this is, perhaps, the least onerous way of taking it. Mr. Lee's bath is highly useful, and very reasonable in price. A decided improvement is, however, to substitute the flannelled mackintosh, made by Messrs. Walters & Co., for the blanket. It confines the vapor better, and averts the dirty marks caused, when mackintosh alone is used, by a deposit of black sulphuret of mercury, due, I suppose, to decomposition of the calomel by the sulphur in the waterproof; or the calomel can be volatilized by strewing it on a small round plate of tin placed on the bearing ring of the portable vapor-bath lamp. In that case I advise the patient first to take a thoroughly hot vapor-bath for ten minutes or so, then to rise, dry himself, place the calomel over the re-lighted lamp, and cover himself well with the flannelled mackintosh. He thus preserves himself thoroughly warm, with a moist skin, without excessive perspiration, and gets a bath without serious fatigue or waste of time.

The bath is taken at first twice a week for a fortnight, then three times a week for another fortnight, and after that every night till, in the judgment of the practitioner, the disease seems to be effectually stamped out,—that is to say, till all manifest signs of persistence or recurrence have disappeared, and clear indications of the action of the mercury have been present for some little time. I do not find it often necessary to order in general more than about eighteen or twenty baths for this purpose. Doubt has been, as I said, cast upon the action of the mercury here, on the ground that pounds of calomel ointment may be rubbed in without producing any salivation, that the calomel is deposited on the skin in a crystalline form quite unsuited for absorption, and that the eruptions of syphilis will die out under the influence of mere watery vapor. Upon hearing this I determined to make some special investigations, and have been led to conclude that the objection is unfounded and that the mercury, thus given, has an unmistakable action on the system, even when only applied to the skin and not inhaled at all. I also questioned the bath attendant, a very intelligent and observing woman, who has been giving baths to my patients for years, and who has had excellent opportunities of watching the action of both kinds of vapor on the skin. Her testimony was unequivocally to the effect that the mercury was more powerfel than the water, and that she had repeatedly seen a "rash," refractory to simple vapor, begin to disperse as soon as ever calomel was resorted to. This statement refers exclusively to the action of these remedies on the skin alone; for though always I direct the patient to inhale, I seldom do so till he has taken half-a-dozen baths.

The baths being taken, the patient is, after an interval of one clear day, put through a course of Zittmann's decoction, lasting for eight days. The reader may think this the most extraordinary part of the whole proceeding, and I admit that it looks so; in fact, it seems rather outrageous to subject a patient to eight days' purging for secondary disease; yet I always do so where I can obtain his consent. If he will not consent, I wash my hands of all responsibility, as pretty ample observation has convinced me that while the plan in its entirety is not infallible, there is no safety for the patient if it be left incomplete. As I always have syphilitic patients under my care, I have been able to watch the influence of this part of the treatment quite fully enough to form an opinion by this time; and after more than four years of almost unbroken observation, I feel that the observations justify me in speaking of the purging as essential.

Some time ago, after I had satisfied myself on this point, I began a series of experiments with the view of ascertaining to what features in its composition the value of the decoction is due, and have every reason to believe that the senna is the sole essential ingredient, and that it owes its value to being given highly diluted and in large bulk, and accompanied by great mixture of liquorice and aromatics. Consequently, I have one after another weeded out many of the ingredients. First, the sarsaparilla may be withdrawn, unless the great faith in its virtues outweighs the objections that it is useless and costly. The antimony and mercury are, I think, entirely useless. There is no necessity for nausea, and any power of setting up perspiration possessed by the former is left quite in the background by the action of the vapor-bath; the mercury is, I submit, better given separately, if required at all, which is rather doubtful. The carminatives may be reduced to one or two, such as cinnamon or cardamoms, or both, and the alum and sugar can be discarded; at least, I observed no diminution in the efficacy of the decoction from omitting these. Dividing the process into the two stages, expressed by the cold and warm decoction, looks rather like some astrological ceremony, or the preparation for going through a magical performance, and may be abolished at once; neither is it in the least degree necessary for the patient to drink three quarts a day; reducing the whole bulk to a pint daily is much more rational, and even this proves far too irksome to most persons, so that for some time past I have been steadily reducing the bulk of the decoction. At the same time, whatever is deducted in this way should be made up in another, and I find this easily effected by directing the patient to drink a cup of tea after the first half of the dose taken before breakfast, and a like quantity of beef-tea, chicken broth, or veal broth after the second half, which should follow the breakfast.

In this way the essential features of the Zittmann treatment are preserved, while it is more adapted to the exigencies of modern life. So many appliances are now to be found for warming fluids and procuring such things as beef-tea, hot, at any time requisite, that a bachelor in his chambers can carry out all that is really requisite quite as well as a patient in a hospital. Free purging there must be. I have seen very unsatisfactory results too often, when modifying the treatment to suit the emergencies of the patient's occupation, to trust again to anything short of this.

An action which produces less than three, four, or five stools daily, I have learned by experience to regard as thoroughly insufficient; and when the decoction does not effect quite this, I never hesitate to prescribe an aperient pill every two or three nights. The decoction should always be taken warm; and when the patient can remain in bed during the early part of the day, and confine himself to the house in the evening, especially during cold and wet weather, I think he undoubtedly recovers more quickly and thoroughly.

After the course of the decoction has been gone through, dilute nitro- or nitro-hydrochloric acid, or dilute phosphoric acid, in some bitter tincture or infusion, should be given if the patient suffers from loss of appetite and debility. I suppose all belief in the anti-venereal properties of such medicines has long faded away, even if it were ever entertained by sober-minded persons since the days of Helenus Scott; but I think there can be no doubt that they materially improve the health; and unless the patient is too tired of medicine to take anything more—which is one of the most probable things in the world—they may be prescribed with the most confident prospect of doing good.

What I have now to add will perhaps awaken more censure and opposition to the treatment than anything else, and that is, that the patient must go through another course of the same kind, but a very short one, at the end of three months, and again at the end of six months after that. This may appear intolerable to some persons; if so, I am sorry for it, but the truth must be stated. The nature of the disease is to return, and the only safe plan is to anticipate the relapse. I do not, however, generally find it requisite to order more than a very short course; three or four weeks of the medicine, raising the dose much more rapidly than at first, half-a-dozen to a dozen baths taken every night, and a four or five days' use of the purgatives, suffice, in most cases, to do all that is requisite.

But all directions as to remedies, external and internal, the modes and times of using them, are liable to be defeated, unless the patient will observe a strictly regulated diet, and conform to the dictates of prudence. The diet should be good, without being heating or over high. I do not know whether it is necessary to define what this really means; but, as it may be thought rather vague, it will perhaps be better to say, that the food should include but a very moderate amount of meat, and that such things as pork, goose, strong heating soups like mulligatawney, curry, shell-fish to any great extent, too much salmon, etc., should be excluded. Plenty of good milk, good bread, and pudding of tapioca, rice, and Chapman's flour, and mutton broth, are most desirable ingredients, Beer of all kinds, spirits, unless it be occasionally a small quantity of pure Hollands, and all strong brandied wines, should be banished at once. Sound, thin, red wine, such as good claret, Burgundy, Carlowitz, and Australian red hermitage, is, I think, by far the most suitable. By conforming to the dictates of prudence, I mean that the patient should sedulously abstain from all unnecessary exposure to cold and rain, from late hours, and excesses of every kind.

This comprises all that is necessary to form the basis of treatment. Of course there are, especially in the tertiary stage, many complications which require additional means, particularly when we only see the patient after mercury has been used, such as blistering in nodes, cauterizing in sore throat, evulsion of the nails for onychia, the removal of dead bone, etc. These are matters of practice which, is discussed in detail, would carry me far beyond all reasonable limits, and I therefore forbear to enter upon them. I must equally refrain from going into the statistics of cure and failure, and content myself with saying that I have seen no system succeed nearly so well, that I have not had so far a single instance of failure or relapse after the full course where I have treated the case from the beginning, and but a small percentage of bad results in cases previously uncured by mercury; and that is equally applicable to any stage of the disease, and, so far as I can judge, any severity of symptoms.

The reader will perhaps ask if I propose to recommend this method in every case of constitutional syphilis; to which I reply, that I most certainly do, unless the patient consents quite unconditionally to take upon himself the responsibility of failure from doing otherwise. The surgeon's task is to exorcise the demon of syphilis; and, as concerns the majority of cases, I think that is best done by early and energetic treatment. Of the two errors, it is better to err on the side of safety, and safety is only to be found by looking on all cases as dangerous. Granted that a few persons throw off the disease by the inherent strength of their constitutions; they are, after all, exceptions; and any system of treatment founded on exceptions is as unsteady as a pyramid standing on its apex.

He may also ask if I can explain how the treatment acts; a question which may be met at once by saying that I know nothing about it. Possibly the wonderfully elastic properties of the humoral doctrine will admit of its being adapted to the case, and there is always the elimination of the virus and the emunctory property of the mercury to fall back upon. True, the humoral doctrine wants a foundation to stand upon; but that shrewd observer, Sir Benjamin Brodie, tells us that this does not interfere with the vitality of a hypothesis, which will continue to exist long after the slender foundation on which it originally rested has melted away. This may be thought improper levity, but really I do not see how the doctrine is to be met in any other manner. Reasoning and experiment are alike lost here. A chancre has been cut out, the blood from the spot unsuccessfully inoculated, and yet the chancrous action has reappeared. There is no evidence that the contamination of the blood is lessened by copiousness of eruption, but plenty of evidence that there is no visible connection between the severity of secondary disease and the state of the circulating fluid. The supposed elimination of the virus from the blood goes on long after there is any virus to be eliminated; for we see it in its most formidable and destructive shape in tertiary syphilis, when neither the blood can be inoculated or auto-inoculated, nor can the disease be conveyed by contact, connection, or descent. Yet with these facts before them, with the full knowledge that they cannot demonstrate the first stage in the hypothesis which they use so freely, and that to verify what they so unhesitatingly advance would require powers of sight and comprehension not possessed by the human race, there are men who constantly speak of elimination and blood-poisoning as though they were speaking of something established beyond doubt.

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